



School of Law

## **Artificial Intelligence: Copyright & Consequences**

On the legal and economic implications of using copyrighted material in AI models, and how this practice could and should affect the ownership and protection of copyrighted materials.

Research and Thesis Trajectory Law and Economics

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## Abstract

This thesis explores the complex interplay between artificial intelligence (AI) models and their usage of copyrighted materials from the perspective of the legal and economic implications that originate from this practice. The normative focus is on ensuring that the copyright holders are protected, while balancing their rights with those of the AI developers who generate such models. This thesis begins by explaining the legal and economic rationale for copyright protection, and the economic value from both copyrighted materials as well as AI-generated ones. The impact of using copyrighted material in AI models on the rights and interests of creators, users, and owners is then critically examined, unveiling a myriad of ambiguities and uncertainties.

This thesis then delves into the worldwide, EU, and Member State level copyright legislation, noting that there is a need for more specific regulation on all levels. The three-step test of copyrightability unraveled through the legal analysis is deemed to be too vague for legal use, whereas the highly codified copyright exceptions previously known in the EU do not provide necessary guidance either. Given this context, the EU legal framework is analyzed and compared against the more flexible US framework, which is based on fair use principles. The thesis proceeds to argue that although a US-inspired framework would require grave changes to the EU legal system, it may benefit all stakeholders involved by providing a clearer, and quicker system to work with.

In chapter five, in light of the conclusions of Chapter 4, recommendations are made to combat the challenges discussed throughout this thesis. They are ranked on their ability to be successfully implemented, as well as their enforceability from an EU perspective.

The assessment was conducted within the context of a regulatory flexibility framework, as it was observed that this approach would offer the optimal means of determining efficacy through the implementation of a regulatory sandbox. Well-scoring recommendations here relate to the opt-out provision, new licensing schemes, and worldwide regulations. Whereas DRM (digital rights management), and the fair use principles were more difficult to square with the said perspective. Finally, chapter six concludes by drawing the threads together of all points discussed in this thesis.

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## Chapter 1 – Introduction

Artificial Intelligence (AI) solutions have experienced a significant surge in popularity over the past few years, with their adoption doubling in the last five years.<sup>1</sup> More recently, there has also been a significant rise in the deployment of such AI tools in consumer-oriented products.<sup>2</sup> These AI models, particularly generative deep learning models, have demonstrated a remarkable ability to perform various tasks, ranging from writing human-like texts (e.g. ChatGPT)<sup>3</sup> to producing high-quality imagery and other forms of media (e.g. Dall-E 2 or Midjourney).<sup>4</sup> These advancements have all been made in recent years, most notably with ChatGPT and Midjourney launching in 2022 to wide acclaim.<sup>5,6</sup>

### 1.1 Introducing Generative AI Models

One of the most prominent AI models to date has been OpenAI's ChatGPT. Now ranging from different models, namely: ChatGPT 3.5 and the premium ChatGPT 4. These models (whose workings are explained later in the chapter) have the ability to generate human-like written text in not just a variety of languages, but also on nearly every topic imaginable. These models are versatile, capable of tasks that span from writing books to generating computer code based on a given input. Such an input is often referred to as a 'prompt'.

Similarly, there are AI models, which are able to generate photos such as Midjourney and Stable Diffusion that generate high-quality visual content, with there now even being AI models which are able to generate full videos based on a prompt, or are able to clone someone's voice<sup>7</sup>. A more recent development, as of April 2023, is the emergence of 'AutoGPT' models. These are models that can take a single prompt, and reiterate on this prompt until it has effectively completed what is asked for

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<sup>1</sup> McKinsey & Company, 'The State of AI in 2022—and a Half Decade in Review' (QuantumBlack, 2022) <<https://www.mckinsey.com/capabilities/quantumblack/our-insights/the-state-of-ai-in-2022-and-a-half-decade-in-review>> accessed 1 May 2023.

<sup>2</sup> Krystal Hu, 'ChatGPT sets record for fastest-growing user base - analyst note' (Reuters, 2 February 2023) <<https://www.reuters.com/technology/chatgpt-sets-record-fastest-growing-user-base-analyst-note-2023-02-01/>> accessed 1 May 2023

<sup>3</sup> Luke Hurst, 'ChatGPT: Why the Human-like AI Chatbot Suddenly Has Everyone Talking' (2022) <<https://www.euronews.com/next/2022/12/14/chatgpt-why-the-human-like-ai-chatbot-suddenly-got-everyone-talking>> accessed 22 May 2023

<sup>4</sup> Benj Edwards, 'AI-Imager Midjourney v5 Stuns with Photorealistic Images—and 5-Fingered Hands' (2023) <<https://arstechnica.com/information-technology/2023/03/ai-imager-midjourney-v5-stuns-with-photorealistic-images-and-5-fingered-hands/>> accessed 22 May 2023

<sup>5</sup> Midjourney, Twitter (30 July 2022) <<https://twitter.com/midjourney/status/1547108864788553729>> accessed 1 May 2023

<sup>6</sup> Alyssa Stringer and Kyle Wiggers, 'ChatGPT: Everything you need to know about the AI-powered chatbot' (TechCrunch, 25 April 2023) <<https://techcrunch.com/2023/04/25/chatgpt-everything-you-need-to-know-about-the-ai-powered-chatbot>> accessed 1 May 2023

<sup>7</sup> Anisha Kohli, 'From Scams to Music, AI Voice Cloning Is on the Rise' (Time, 29 April 2023) <<https://time.com/6275794/ai-voice-cloning-scams-music/>> accessed 1 May 2023

without the need for any human input.<sup>8</sup> These models possess the ability to not only comprehend a prompt but to also continue to iterate and refine it as well as to guide other AI models until they have completed the task given. Sometimes these models may even go as far as hiring platform workers to perform tasks, which they are unable to do as an AI, and where they need human help to get something done. An example of this would be an AutoGPT model, which told a gig worker that it was vision-impaired whereas it in reality needed to bypass captchas (an antibot mechanism on websites) that it could not pass itself.<sup>9</sup>

All of these developments laid out above have led to a surge in AI-generated content,<sup>10</sup> including literature, music, and other types of content. These developments however also blurred the lines between human and machine-generated content, raising critical questions regarding the legal and economic implications of such AI-generated content – something that will be investigated in-depth in this thesis.

## 1.2 Research Problem and Context

As explained above, the primary research problem discussed in this thesis pertains to the increasing prevalence of AI-generated works in society, and how this may affect copyright law and the rights of copyright owners. As an AI model utilizes copyrighted materials to generate its models<sup>11</sup> (training data to train those models to be specific) it may generate content which in turn may potentially infringe on existing copyrights, as well as the models being based on copyrighted material in the first place.

As an example, AI-generated content has already been able to win photography awards based upon non-existent images.<sup>12</sup> In some cases, AI-generated works may even closely resemble copyrighted materials.<sup>13</sup> Yet, considerable legal uncertainties remain regarding whether or not the content generated with AI models, or the copyrighted materials used to train such models, constitutes a

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<sup>8</sup> Fezari, Mohamed, and Ahmed Al-Dahoud Ali-Al-Dahoud. "From GPT to AutoGPT: a Brief Attention in NLP Processing using DL."

<sup>9</sup> Joseph Cox, 'GPT-4 Hired Unwitting TaskRabbit Worker By Pretending to Be "Vision-Impaired" Human' (Vice, 15 March 2023) <<https://www.vice.com/en/article/jg5ew4/gpt4-hired-unwitting-taskrabbit-worker>> accessed 22 May 2023

<sup>10</sup> Greg Bensinger, 'ChatGPT launches boom in AI-written e-books on Amazon' (21 February 2023) Reuters <<https://www.reuters.com/technology/chatgpt-launches-boom-ai-written-e-books-amazon-2023-02-21/>> accessed 22 May 2023

<sup>11</sup> Gil Appel, Juliana Neelbauer, and David A Schweidel, 'Generative AI Has an Intellectual Property Problem' (2023) <<https://hbr.org/2023/04/generative-ai-has-an-intellectual-property-problem>> accessed 22 May 2023

<sup>12</sup> Allison Parshall, 'How This AI Image Won a Major Photography Competition' (Scientific American, 21 April 2023) <<https://www.scientificamerican.com/article/how-my-ai-image-won-a-major-photography-competition/>> accessed 4 June 2023

<sup>13</sup> Diana Bikbaeva, 'AI Trained on Copyrighted Works: When Is It Fair Use?' (The Fashion Law, 1 February 2023) <<https://www.thefashionlaw.com/ai-trained-on-copyrighted-works-when-is-it-fair-use/>> accessed 4 June 2023

breach of copyright. And if so, how the copyright owners could be best protected against such practices.

Hence, several economic and legal concerns arise because of this practice, especially regarding ownership and authorship issues, infringement of copyright holders' rights, and other legal/economic rights and incentives, which may be infringed upon. This research will mainly focus on the EU side of the intersection between AI and copyright. A sub-chapter will be spent looking at developments in the United States as well, with the intention to use the US model as a benchmark. Given that most of the AI models currently making headlines (Midjourney, ChatGPT) as well as most AI research originate from the US (& China),<sup>14</sup> such an exercise seems fruitful.

Hence the research question of this thesis is as follows:

*"What are the legal and economic implications of using copyrighted material in AI models, and how should this practice affect the ownership and protection of the resulting work?"*

To answer the research question laid out above, this thesis will rely on the following sub-questions, with a particular focus on the European Union:

- What are AI models?
- What are the legal and economic rationales for copyright protection and what are the relevant EU legal rules in that respect?
- How does the use of copyrighted material in AI models impact the scope of copyright protection and how does it affect the rights and interests of creators, users, and owners of such material?
- How do copyright laws apply to the ownership and protection of the work used and generated by AI models?
- What are the legal and economic implications of using copyrighted material in AI models, and how should copyright laws apply to the use of the resulting material?

To illustrate the importance of the above topic: Just a few years ago such a discussion would not have been much of an issue, given that AI-generated works were easily distinguished from human works. However, this has changed drastically in the past few years. To illustrate, the children's book 'Alice and Sparkle' was created at the end of 2022 using ChatGPT and Midjourney technologies within 48

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<sup>14</sup> Savage, Neil. "The race to the top among the world's leaders in artificial intelligence." Nature (2020): S102-S102.



hours.<sup>15</sup> The book sold approximately 900 copies in its first month on Amazon before it was removed,<sup>16</sup> leading to both concerns about the validity and legality of such AI-generated content as well as leading to an influx of newly AI-generated book(let)s on the Amazon platform.<sup>17</sup>

These developments, among others, have significantly increased the urgency to understand the legal and economic implications of such AI-generated works, as well as to create a framework, which is both able to accommodate the rights of copyright holders while ensuring that AI technological developments may continue.

### 1.3 Academic and Practical Relevance of the Research

The proposed research, as previously explained, is of academic relevance as it tackles the swiftly evolving area of AI and copyright law. Although this has been the subject of discussion and research for quite some time now, the pace of the development in AI models necessitates an up-to-date examination of both the legal and economic consequences of such generated content with respect to EU copyright law, especially as it now has become not just legally, but economically relevant as well.

Investigating the legal and economic implications of AI-generated works, this research aims to contribute to the ongoing societal discourse about the usage of copyrighted materials to create AI models, as well as the copyrightability of the AI-generated content. Furthermore, this research is not just relevant for legal and/or economic scholars, but also for creators of AI models, their users and the owners of the copyrighted material who all may be directly affected by the outcome of this research. Hence, all of these topics will be discussed, together with how a legal framework would be best suited to accommodate the abovementioned issues. For instance, users of an image generation AI model such as OpenAI's Dall-E may face potential legal liability if the generated work is found to be infringing on existing copyrights. Hence, as AI-generated works become increasingly prevalent in today's society, understanding the legal and economic implications of both the models and their created works becomes increasingly essential for all stakeholders involved in the generation and usage of said models, as well as to ensure a proper level of compensation for the copyright owners.

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<sup>15</sup> Beatrice Nolan, *'This man used AI to write and illustrate a children's book in one weekend. He wasn't prepared for the backlash'* (15 January 2023) Business Insider <<https://www.businessinsider.com/chatgpt-midjourney-ai-write-illustrate-childrens-book-one-weekend-alice-2023-1?international=true&r=US&IR=T>> accessed 22 May 2023

<sup>16</sup> Ibid

<sup>17</sup> Greg Bensinger, *'ChatGPT launches boom in AI-written e-books on Amazon'* (21 February 2023) Reuters <<https://www.reuters.com/technology/chatgpt-launches-boom-ai-written-e-books-amazon-2023-02-21/>> accessed 22 May 2023

## 1.4 Research Methods and Approach

The research proposed in this thesis will be primarily conducted using library-based methods. This approach includes a literature review of academic and legal literature on the topic of AI (models) and copyright. Incorporating previously written journals, relevant case law, and legislation. The literature review will be conducted using online databases such as WorldCat, JSTOR, Google Scholar, and similar sources of data. Additionally, the output of internationally relevant organizations such as the World Intellectual Property Organization (WIPO) and the European Intellectual Property Office (EUIPO) will be consulted for relevant information, as well as (relevant) news sources.

The theoretical framework for this research will examine the legal and economic rationales for intellectual property (IP) protection and assess how they can be squared with the recent developments in generative AI models (such as Dall-E, Midjourney, ChatGPT, etcetera). This includes the challenges AI models and AI-generated works may pose to the current legal system regarding IP protection and ownership. By incorporating a regulatory flexibility perspective into the analysis, the recommendations will consider the benefits of such a framework, and how each recommendation fits in such a framework. This approach recognizes the need for adaptable regulations that can accommodate the evolving landscape of AI-generated works while maintaining a fair balance between the rights of copyright holders and the rights of AI users/developers.<sup>18</sup> As a result of preliminary research, special attention will be given to the draft AI act and other EU copyright-related directives, as these pieces of legislation have been identified as centrally important by the legal research retrieved from the sources mentioned above.

Expanding beyond the EU-focused library-oriented research outlined above, EU law will be juxtaposed with some principles from US (copyright) law later in the thesis. This is due to most of the AI models discussed in this thesis originating from the United States, as well as due to important differences between the US (fair use) doctrine and EU law. Additionally, this raises the possibility for legal arbitrage strategies regarding this topic, given that there is not one global set of international copyright laws relating to the usage of copyrighted material to generate AI models.<sup>19</sup>

### 1.4.1 Definitions of Relevant Terminology

Prior to delving deeper, it is essential to establish a firm understanding of the relevant terminology. Starting with what an AI model entails, how it is developed, as well as exploring some of the intricacies

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<sup>18</sup> Attrey, Angela, Molly Leshner, and Christopher Lomax. "The role of sandboxes in promoting flexibility and innovation in the digital age." (2020).

<sup>19</sup> Eva Ametsbichler and Stefan Haßdenteufel, 'Snapshot: The Scope of Copyright in European Union' (2021) <<https://www.lexology.com/library/detail.aspx?g=1013cebf-9e8e-41a0-bac0-595f0e04133b>> accessed 22 May 2023

between the models which will be discussed throughout the thesis. As noted before, AI stands for artificial intelligence. Artificial intelligence refers to the simulation of human intelligence processes by computer systems, such as neural network technology.<sup>20</sup> In essence, it is a mathematical structure that learns patterns from data and then utilizes this newly gained knowledge to make predictions without explicitly being programmed to do so.<sup>21</sup>

AI models are constructed through a process known as 'machine learning', which can both be supervised as well as unsupervised.<sup>22</sup> This is where an algorithm/model is 'trained' to learn from the data it is given. This training process involves feeding the model vast amounts of data, which it in turn can adapt to make predictions/decisions based on patterns it finds. Such AI models may span a wide range of categories. Examples are AI models, which are able to learn patterns that may be used for solving traffic congestion,<sup>23</sup> financial analyses,<sup>24</sup> and more recently to generate (audio)visual content as discussed in the introduction. The latter is referred to as generative AI models, capable of producing new content based on a user's input, termed a 'prompt'.<sup>25,26</sup> This type of AI model will be specifically focused upon throughout this thesis and how these generative AI models may interact with copyright laws, and the rights of copyright owners.

Another frequently used term throughout the thesis relates to 'copyrighted material'. Here, copyrighted material refers to any and all works, which enjoy 'copyright protection'. Typically referring to books, music, movies and other forms of creative content.<sup>27</sup> Copyright protection is where the creator (or owner if the right is transferred) enjoys protection that their work may not be used without their express permission for (oftentimes) their entire life plus a period after their death<sup>28</sup>. This is done to ensure that copyright creators are able to profit from their work, thus providing a monetary incentive for further creations.<sup>29</sup> This thesis uses 'copyright holders' to denote both the creators of

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<sup>20</sup> Agatonovic-Kustrin, S., and Rosemary Beresford. "Basic concepts of artificial neural network (ANN) modeling and its application in pharmaceutical research." *Journal of pharmaceutical and biomedical analysis* 22.5 (2000): 717-727.

<sup>21</sup> Ibid

<sup>22</sup> Gupta, R., Srivastava, D., Sahu, M., Tiwari, S., Ambasta, R. K., & Kumar, P. (2021). 'Artificial intelligence to deep learning: machine intelligence approach for drug discovery.' *Molecular diversity*, 25, 1315-1360.

<sup>23</sup> Akhtar, Mahmuda, and Sara Moridpour. "A review of traffic congestion prediction using artificial intelligence." *Journal of Advanced Transportation* 2021 (2021): 1-18.

<sup>24</sup> Xie, Minzhen. "Development of artificial intelligence and effects on financial system." *Journal of Physics: Conference Series*. Vol. 1187. No. 3. IOP Publishing, 2019.

<sup>25</sup> Wong, Melvin, et al. "Prompt Evolution for Generative AI: A Classifier-Guided Approach." *arXiv preprint arXiv:2305.16347* (2023).

<sup>26</sup> Chui, M., Roberts, R., & Yee, L. (2022). 'Generative AI is here: How tools like ChatGPT could change your business.' *Quantum Black AI* by McKinsey.

<sup>27</sup> Varian, Hal. "Transactions costs and copyright." *WIPO, Geneva, Seminar Series on the Economics of Intellectual Property (IP)*. 2010.

<sup>28</sup> Ibid

<sup>29</sup> Stadler, Sara K. "Incentive and Expectation in Copyright." *Hastings LJ* 58 (2006): 433.

copyrighted materials such as artists, as well as those holding the rights to these materials, such as studios employing the artists.

### 1.5 Structure of the Thesis

This thesis consists of six chapters, including the introduction. The initial chapter provided an introduction on why the topic is of interest, and discusses the research question and sub questions, their academic relevance, together with the research methods and approach. The second chapter provides both an explanation on used terminology (e.g. what is an AI model) in this thesis, as well as an in-depth literature review regarding the current copyright landscape within the EU and how copyright holders are currently protected. The third chapter provides the current legal status quo in the EU, and the fourth chapter provides an analysis as well as a benchmark against the US' fair use laws, given the major differences in how they deal with allowing third parties to use copyrighted materials. Subsequently, chapter five presents recommendations based on the insights gleaned thus far, which in turn will be discussed further from a regulatory flexibility framework. The sixth and concluding chapter will derive the conclusions on the research question and sub-questions, engaging with the findings presented throughout the thesis.

## Chapter 2 – Literature Review on Copyright & AI

The following literature review offers an overview of the existing research on copyright and AI, and explores the legal and economic implications of AI models and their generated works. It also delves into the legal and economic rationale for copyright protection, as well as the challenges currently posed by AI-generated content to our current legal framework within the EU. The literature review will examine various academic- and policy-related papers and proposals to address the challenges laid out and to explore potential accommodations for AI models and their generated content in the current IP landscape.

### 2.1 Legal and Economic Rationales for Copyright Protection

Copyright protection serves as one of the major cornerstones of intellectual property law and plays a critical role in encouraging and rewarding creative works.<sup>30</sup> The rationales behind this protection can be divided into both legal and economic perspectives. Each of these perspectives will be discussed in more detail below.

#### 2.1.1 Legal Rationales for Copyright Protection

Intellectual property rights are – as the term suggests – property rights pertaining to intellectual property, which include copyright.<sup>31</sup> The need for such copyright protection from a legal lens is rooted in the concept known as ‘natural rights’.<sup>32</sup> According to this concept, authors and other creators should be able to have the ability to profit from their own creations.<sup>33</sup> This presumed right is often justified on the grounds of the ‘labor theory of property’,<sup>34</sup> which says that individuals are entitled to the fruits of their labor.<sup>35</sup> This argument seemed to have found its way into existence through the writings of Locke, who argued similarly that people should have the right to be able to bear the fruits of their labor.<sup>36</sup>

These concepts are further underlined when looking at existing scholarly research. From works from scholars such as Dr. Shavell on the relationship between law and economics on property rights, it is

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<sup>30</sup> United Nations, ‘Promoting Intellectual Property Law to Protect Creativity’ (n.d.) <<https://www.un.org/en/academic-impact/promoting-intellectual-property-law-protect-creativity>> accessed 2 June 2023

<sup>31</sup> World Trade Organization, ‘What are intellectual property rights?’ (n.d.) <[https://www.wto.org/english/tratop\\_e/trips\\_e/intel1\\_e.htm](https://www.wto.org/english/tratop_e/trips_e/intel1_e.htm)> accessed 2 June 2023

<sup>32</sup> Mritunjay Kumar, ‘Natural Rights Theory of Copyright Protection’ (Ad Valorem, Journal of Law, 2016) <[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3636784](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3636784)> accessed 2 June 2023

<sup>33</sup> Peter S Menell, ‘Intellectual Property: General Theories’ (1999) <<http://www.dklevine.com/archive/ittheory.pdf>> accessed 2 June 2023

<sup>34</sup> Lawrence C Becker, ‘The Labor Theory of Property Acquisition’ in Property Rights (Routledge Revivals) (1st edn, Routledge 1977) <<https://www.jstor.org/stable/2025823>> accessed 2 June 2023

<sup>35</sup> Ibid

<sup>36</sup> Ibid

understood that the current copyright law system is designed to provide authors with property rights to their creative works in order to give them an incentive to keep creating new works.<sup>37</sup> This is achieved by providing a monetary incentive, as well as by ensuring that the socially optimal amount of work is performed.<sup>38</sup> In addition to this, Shavell also asserts that it serves as an incentive to maintain and enhance goods, and encourages the transfer of items, provided this proves beneficial. This approach also helps in avoiding disputes and potentially offers protection for the copyright creator/owner.

This does not mean that there are no arguments given against copyright in its current form. For instance, authors such as Daniel Astone argue that, from a legal-economic perspective, the induced scarcity of having such intellectual property mechanisms in place is neglected too often.<sup>39</sup> This may lead to negative consequences, as the scarcity induced means that fewer people are able to enjoy such a good.

Legal scholar and previous US federal judge Richard Posner, in turn, argues that having such intellectual property rights is akin to having a temporary monopoly (for instance on a patent), which can be a legal/economic monopoly.<sup>40</sup> This right does have its fair share of critics, a scholar who sees this as problematic is property law expert Jessica Silbey. She argues that the copyright period (often lasting 70 years past one's death) should be shortened so that "more people could play or tinker [...] without facing lawsuits".<sup>41</sup> Thereby ensuring a free flow of information and new developments in the public domain, something which may not be possible under the current legal/economic monopoly position the right holder(s) enjoy.

Hence, we can conclude from the legal perspective that although there are wide differences in opinions regarding copyright protection, it remains an essential aspect of the legal landscape. While there seems to be a consensus on the need to provide some form of intellectual property protection, the extent, and form of such protection continues to be the subject of intense debate among legal scholars. The main challenge herein lies in striking a balance between safeguarding the rights of

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<sup>37</sup> S. Shavell, "Foundations of economic analysis of law," in *Foundations of economic analysis of law*, Cambridge, Massachusetts, Harvard University Press, 2004, pp. 11-31.

<sup>38</sup> Ibid

<sup>39</sup> Daniel Pinheiro Astone, 'Scarcity, Property Rights, Irresponsibility: How Intellectual Property Deals with Neglected Tropical Diseases' (2023) 34 *Law and Critique* 145 <<https://link.springer.com/article/10.1007/s10978-022-09324-3>> accessed 2 June 2023

<sup>40</sup> Richard A Posner, 'Intellectual Property: The Law and Economics Approach' (2005) 19 *Journal of Economic Perspectives* 57 <<https://pubs.aeaweb.org/doi/pdfplus/10.1257/0895330054048704>> accessed 2 June 2023

<sup>41</sup> Ting Yu, 'How Copyrights, Patents, and Trademarks May Stifle Creativity and Progress' (Boston University, 16 August 2022) <<https://www.bu.edu/articles/2022/how-copyrights-patents-trademarks-may-stifle-creativity-and-progress/>> accessed 5 June 2023

creators/owners and ensuring a free flow of information, ideas, and creativity in the public domain at the same time.

### 2.1.2 Economic Rationale for Copyright Protection

Having explored the legal rationale behind copyright protection, it is pertinent to discuss the economic rationale behind such intellectual property rights as well. This section primarily lays focus on economic concepts such as economic incentives, spillover effects as well as concepts such as public goods, and the limitations and exceptions to such exclusive rights in an economic context.

#### 2.1.2.1 Incentivizing Creativity & Innovation

A common argument for the economic importance of copyright protection is that it incentivizes creators and innovators, as by granting such intellectual property rights it allows them to profit from their work<sup>42</sup> and further incentivizes them to continue creating intellectual property.<sup>43</sup> These mechanisms help to ensure that such creative and innovative products will still be created, as without a proper incentive to do so the quantity of such creations might not be as substantial as presently observed.

#### 2.1.2.2 Public Goods & Spillovers

Two other important principles to understand for the economic relevance of copyright protection are the concepts of public goods and spillovers. Public goods are typically characterized as ‘non-exclusionary’ which means that it is difficult – if not impossible – to prevent people from consuming them, as well as them being ‘non-rivalrous’ which means that one’s consumption of such a good does not mean that another person is not able to consume the same product (i.e. multiple people can read the same book).<sup>44</sup> As a result of this, creative and innovative works may be subject to market failures as the creator or innovator may not be able to be compensated for their works without there being legal protections in place. Without such safeguards, there could be free dissemination of such materials without any cost or repercussion for doing so.

#### 2.1.2.3 Industry’s Importance

An additional reason to enforce copyright protection is to ascertain that the creative and cultural industries are protected, given the significant economic importance of this sector as it employs 8.7

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<sup>42</sup> European Commission, ‘Benefits of intellectual property rights’ <[https://policy.trade.ec.europa.eu/enforcement-and-protection/protecting-eu-creations-inventions-and-designs/benefits-ipr\\_en](https://policy.trade.ec.europa.eu/enforcement-and-protection/protecting-eu-creations-inventions-and-designs/benefits-ipr_en)> accessed 4 June 2023

<sup>43</sup> Shyamkrishna Balganes, ‘Foreseeability and Copyright Incentives’ (2009) 122(6) Harvard Law Review 1569-1633 <<https://www.jstor.org/stable/40379763>> accessed 4 June 2023

<sup>44</sup> Stanford University, ‘Intellectual Property’ (Stanford Encyclopedia of Philosophy, 18 August 2022) <<https://plato.stanford.edu/entries/intellectual-property>> accessed 4 June 2023

million people in the EU alone, the equivalence to 3.8% of the total population<sup>45</sup> with a total revenue of 643 billion Euros, representing 4.4% of the EU's total GDP.<sup>46</sup> The sheer value represented here provides weight to the argument that the industry is allowed to thrive without there being unwarranted negative influences from the outside.

However, the field of AI is also said to have a significant impact on the European economy. According to a briefing published by the European Parliament<sup>47</sup> a study by consulting company Accenture is noted which forecasts that by 2035 AI could double the annual global economic growth rates, increasing labor activity by up to 40%. And a 2018 study published by PricewaterhouseCoopers estimates that global GDP may increase by up to 14% by 2030 (15.7 trillion USD) as the result of accelerating developments in the AI-sphere.<sup>48</sup> Although that this refers to all AI models in their totality, it is noted that this study was released in 2019, years before the generative GPT-models became widely available and used as they are today. Therefore, despite the copyright challenges posed by AI developments are economically relevant enough that banning such techniques (as Italy did of GDPR concerns<sup>49</sup> before allowing it to come back after these concerns were ratified<sup>50</sup>) may be able to severely harm an economy's future growth. In short, finding a proper balance between the rights of the creative industry and their copyright holders as well as AI model developers is crucial from an economic perspective.

#### 2.1.2.4 Exceptions and Limitations of Copyright Protection

As previously discussed, both the economic and legal perspectives on copyright protection acknowledge the importance on setting limitations on such protection to try and balance the interests of creators and users.<sup>51</sup> For instance, by bringing rights to quote, parody, or use works for educational

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<sup>45</sup> European Commission, 'Data on the Cultural Sector', <<https://culture.ec.europa.eu/policies/selected-themes/data-on-the-cultural-sector>> accessed 20 April 2023.

<sup>46</sup> European Commission, '€24 Million for Cultural and Creative Small Businesses in Belgium via ST'ART, a Specialised Investment Fund Financing Cultural and Creative Industries, in Conjunction with the European Investment Fund (EIF) and InvestEU' (Press Release, 13 March 2023, Luxembourg) <[https://ec.europa.eu/commission/presscorner/detail/en/IP\\_23\\_1626](https://ec.europa.eu/commission/presscorner/detail/en/IP_23_1626)> accessed 20 April 2023.

<sup>47</sup> Marcin Szczepański, 'Economic impacts of artificial intelligence (AI)' (EU Parliament briefing, July 2019) <[https://www.europarl.europa.eu/RegData/etudes/BRIE/2019/637967/EPRS\\_BRI\(2019\)637967\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2019/637967/EPRS_BRI(2019)637967_EN.pdf)> accessed 4 June 2023

<sup>48</sup> PricewaterhouseCoopers, 'The macroeconomic impact of artificial intelligence' (February 2018) <<https://www.pwc.co.uk/economic-services/assets/macro-economic-impact-of-ai-technical-report-feb-18.pdf>> accessed 4 June 2023

<sup>49</sup> Shiona McCallum, 'ChatGPT banned in Italy over privacy concerns' (BBC News, 1 April 2023) <<https://www.bbc.com/news/technology-65139406>> accessed 4 June 2023

<sup>50</sup> Adi Robertson, 'ChatGPT returns to Italy after ban' (The Verge, 28 April 2023) <<https://www.theverge.com/2023/4/28/23702883/chatgpt-italy-ban-lifted-gdp-data-protection-age-verification>> accessed 4 June 2023

<sup>51</sup> Simone Schroff, 'The Purpose of Copyright—Moving Beyond the Theory' (2021) 16 Journal of Intellectual Property Law & Practice 1262. Available at: <<https://doi.org/10.1093/jiplp/jpab130>> accessed 4 June 2023



purposes.<sup>52</sup> As well as setting certain time limits on intellectual property (in EU countries protection extends up until 70 years after one's death).<sup>53</sup> Such provisions allow for the enhancement and augmentation of pre-existing works, and possibly the creation of new innovative products. It can therefore be noted that there is an overlap between the economic, and legal rationales for copyright protection as explained above. Thereby showing the level of interdisciplinarity of this topic, with one relying on a more ethical stance ('fruits of one's own labor') and the other places a heavier focus on efficiencies (to innovate and properly disseminate).

As delineated above, numerous scholars have highlighted the legal and economic necessity for intellectual property rights, as well as some of the (negative) consequences which may occur from this. However, given the rise in AI content over the past few years – and noticeably months – this warrants a closer look into the issues that may arise for copyright owners and/or creators, and the AI models which are trained upon their data. Especially as there has been little academic research yet on the rights of copyright holders possibly being infringed by AI models within an EU law framework, posing a crucial legal issue,<sup>54</sup> which will be tackled in this thesis. In the third chapter, we will delve into how the EU law reflects these economic and legal principles. This chapter instead will continue to explore the challenges that AI models and their generated materials pose for the main actors in the system – namely, creators, users and owners. This is important to examine as this constitutes the main focus point of this thesis.

As explained previously in the introduction, AI content is generated with what is known as a 'model'. Such a model, particularly generative ones based on deep learning techniques, contains or is based on a diverse set of sample data, which in turn may be copyrighted. Consequently, the usage of such copyrighted material to generate an AI model without explicit permission from the rights holder which in turn generates new content raises complex legal and economic questions. These questions include how these rights of copyright holders, as well as the technological innovation provided by AI model creators can be best balanced. The following section will delve into the consequences that occur from the usage of such copyrighted material for the owners/creators of copyrighted materials.

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<sup>52</sup> European Commission, 'Questions and Answers – New EU Copyright Rules' (4 June 2021) <[https://ec.europa.eu/commission/presscorner/detail/en/qanda\\_21\\_2821](https://ec.europa.eu/commission/presscorner/detail/en/qanda_21_2821)> accessed 4 June 2023

<sup>53</sup> European Union - Your Europe, 'Copyright' (3 May 2023) <[https://europa.eu/youreurope/business/running-business/intellectual-property/copyright/index\\_en.htm](https://europa.eu/youreurope/business/running-business/intellectual-property/copyright/index_en.htm)> accessed 4 June 2023

<sup>54</sup> João Pedro Quintais, 'Generative AI, Copyright and the AI Act' (Kluwer Copyright Blog, 9 May 2023) <<https://copyrightblog.kluweriplaw.com/2023/05/09/generative-ai-copyright-and-the-ai-act/>> accessed June 1, 2023

## 2.2 Impact of the Usage of Copyrighted Material in AI Models on Rights and Interests of Creators, Users, and Owners

The debate surrounding the usage of copyrighted material in AI models is one that is intricate, encompassing a wide range of views across the different types of stakeholders such as the creators, users, and owners of copyrighted works. As noted earlier in this thesis, copyright law encourages creation by providing exclusive rights to creators, allowing them to benefit from their labor in theory. This framework has been challenged by the introduction of artificial intelligence models, which in turn are trained upon such material, oftentimes without explicit permission from the rights holder(s).

In turn, copyright owners may argue for stringent copyright protections, even when the copyrighted material is used in a transformative manner by AI models. Not doing so could lead to a loss in revenue for the copyright owner(s), and hence, stifle further creations in the future. Therefore the following sections explore the potential impact of AI-generated content on creators, users, and owners of copyrighted works. A distinction is made between creators and owners of these works due to possible nuanced differences in their interests, despite their general alignment as alluded to in the introduction.

### 2.2.1 Creators of Copyrighted Works

With regard to creators, existing literature on AI-generated content focuses on the implications that AI models and their generated works have on authorship, creative processes and the overall value of human- (or machine) generated works. The concerns regarding creators of copyrighted works tend to revolve around the mentioned potential devaluation of human creativity and work, the opportunities arising for enhancing said creativity using AI tools and questions regarding authorship and attribution in the context of how AI-generated models are created, and their respective works. This includes ethical concerns such as those regarding 'deepfakes'.<sup>55</sup> This entails the alteration of an image to such an extent that it is not clear that it has been altered, potentially causing real world harm to the person(s) depicted.<sup>56</sup>

Some scholars argue that AI-generated content may lead to a devaluation of human creativity as it may (in theory) replace human-made works, given that audiences may devalue the work of human

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<sup>55</sup> Thomas H. Davenport & Nitin Mittal, *'How Generative AI Is Changing Creative Work'* (2022) Harvard Business Review, available at <<https://hbr.org/2022/11/how-generative-ai-is-changing-creative-work>> accessed: May 1<sup>st</sup> 2023

<sup>56</sup> Merriam-Webster, *'Deepfake'*, available at <<https://www.merriam-webster.com/dictionary/deepfake>> accessed May 1<sup>st</sup> 2023

authors as something that they could easily make themselves using a machine.<sup>57</sup> Conversely, some proponents argue that AI should augment human creativity;<sup>58</sup> therefore, striking a balance between AI- and human-generated content creators is key. Providing appropriate remuneration for copyright creators not only promotes further innovation and safeguards economic stability, but also ensures the availability of training data. Failing to do so would represent a mutually detrimental circumstance for all parties involved.

Two seminal contributors to this interdisciplinary field of intersecting law and economics with copyright have been Landes and Posner who argued that the most important benefits of intellectual property rights is not as much that they generate such an incentive for new work, but that they ensure efficient exploitation of existing intellectual works.<sup>59</sup> They argue that allowing copyright on popular works to expire may lead to an overexploitation of those works.<sup>60</sup> In economic terms, this is known as the 'tragedy of the commons', where a public good is overexploited to a degree where the rational choice becomes to fully exhaust the good, rather than preserving it for the benefit of all.<sup>61</sup>

Questions about authorship and attribution also arise given that traditional notions of creativity and originality do not fit as well in the existing (international) copyright frameworks. These will be described in detail in the next chapter on the relevant international and EU-specific legal frameworks. Nevertheless, it is apparent that properly protecting the rights of copyright creators is rather crucial from a law and economic perspective, as to ensure both efficient exploitation as well as to prevent a tragedy of the commons situation which may hurt the further creation of copyright. Hence, it can certainly be argued that such protections must be transferred to the field of artificial intelligence, and the creation of their models as to ensure proper exploitation of copyrighted content, and incentivizing future creations.

### 2.2.2 Users of AI Models & Content

Concerning users of AI models and the content they create with those models, the impact primarily revolves around the potential for AI-generated works, and the models used to create those works, to infringe upon copyright protections. Once again, scholarly opinions on this topic vary considerably.

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<sup>57</sup> 'Generative AI: The End of Human Creativity or the New Renaissance?' (Storius Magazine, 14 April 2023) <<https://storiushmag.com/generative-ai-the-end-of-human-creativity-or-the-new-renaissance-754b627efdde>> accessed 2 June 2023

<sup>58</sup> De Cremer, D and Kasparov, G, 'AI Should Augment Human Intelligence, Not Replace It' (2021) Harvard Business Review, 18 March <<https://hbr.org/2021/03/ai-should-augment-human-intelligence-not-replace-it>> accessed 2 May 1<sup>st</sup> 2023

<sup>59</sup> Lambrecht, Maxime. "The time limit on copyright: an unlikely tragedy of the intellectual commons." European journal of law and economics 43.3 (2017): 475-494.

<sup>60</sup> Ibid

<sup>61</sup> Ostrom, Elinor. "Tragedy of the commons." The new palgrave dictionary of economics 2 (2008): 1-4.

Some note that AI-generated content could democratize access to information and lower the barriers to create art and other copyrightable works, expanding upon human creativity.<sup>62</sup> Whereas others warn that such unrestricted access to AI-generated content and models may result in an overly large amount of low-quality and/or misleading information.<sup>63</sup> For instance, researchers from Emory University refer to AI-generated content as another ‘industrial revolution in the making’, saying that it could “drastically reduce the number of jobs available to working commercial artists today”.<sup>64</sup> This could be of grave concern for the copyright holders involved, as it may mean a substantial decline in the creative industry overall if the concerns are not properly balanced.

There are also arguments regarding the potential misuse of copyrighted materials by human artists, such as creating a ‘deepfake’-like version of their work to harm them as noted before. Additionally, there have been concerns regarding potential copyright infringement when AI-generated works incorporate or resemble copyrighted material (or where models are based on such copyrighted materials), potentially another factor which could lead to lawsuits and/or other legal remedies.<sup>65</sup>

Such legal disputes may pose serious negative consequences for both the creation of AI models, as well as their generated content. This is then further complicated by the fact that such AI-generated works are often easily transmitted through the internet, crossing multiple jurisdictions, which in turn may have different rules and regulations.<sup>66</sup> For instance, the more flexible fair use doctrine in the US may lead to a different conclusion on a copyright owners’ legal rights than in the European Union.<sup>67</sup> This will be discussed in-depth in chapter four, where the American fair use doctrine and copyright framework is compared to the copyright framework currently in place in the EU.

### 2.2.3 Owners of Copyrighted Materials

Finally, attention will be directed towards the owners of copyrighted materials. Their interests largely overlap with those of the creators of copyrighted materials, but there are however some additional points to be discussed here. For such copyright owners, AI-generated content and models raise questions about the protection and enforcement of their intellectual property rights.<sup>68</sup>

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<sup>62</sup> Adam Hencz, 'Agents Of Change: Artificial Intelligence – AI Art and How Machines Have Expanded Human Creativity' (Artland Magazine) <<https://magazine.artland.com/ai-art/>> accessed 2 June 2023

<sup>63</sup> Newton, Alexis, and Kaustubh Dhole. "Is AI Art Another Industrial Revolution in the Making?." arXiv preprint arXiv:2301.05133 (2023).

<sup>64</sup> Ibid

<sup>65</sup> Sag, Matthew. "Copyright Safety for Generative AI." Forthcoming in the Houston Law Review (2023).

<sup>66</sup> Zhuk, Alesia. "Navigating the legal landscape of AI copyright: a comparative analysis of EU, US, and Chinese approaches." AI and Ethics (2023): 1-8.

<sup>67</sup> Ibid

<sup>68</sup> European Parliament, 'REPORT on intellectual property rights for the development of artificial intelligence technologies' (2 October 2020) <[https://www.europarl.europa.eu/doceo/document/A-9-2020-0176\\_EN.html](https://www.europarl.europa.eu/doceo/document/A-9-2020-0176_EN.html)> accessed 2 June 2023

Some academics in this field argue that all AI-generated works should be considered derivative works,<sup>69</sup> which (under EU copyright legislation) require permission from the original copyright holder.<sup>70</sup> Whereas others propose licensing schemes<sup>71</sup> or changes to the overall legal framework given the unique nature of the AI models and their generated content.<sup>72</sup> There are also arguments addressing AI developers and how they should take responsibility to prevent copyright infringement<sup>73</sup> both when creating the models as well as to ensure that their models may not lead to copyright infringing outputs.<sup>74</sup> These arguments are discussed in more depth in the following chapter.

## 2.3 Copyrighted Material in AI Models and Impact on Copyright Protection

### 2.3.1. AI-Generated Copyright Infringement

Although AI-generated content is a relatively recent and rapidly evolving area, the EU has already initiated the discussion on changing their current AI legislation framework to better suit such generative models.<sup>75</sup> Under these proposed updates, companies creating AI models would be required to disclose any copyrighted material such as images or novels used to train such a model.<sup>76</sup> Since these proposals were published at the end of April 2023, it is important to acknowledge that this idea has not yet been incorporated into EU law at the time of writing, and may therefore still be subject to change.

Already, several lawsuits have been initiated against AI model providers. For instance, in the US where Getty Images (a provider of licensable content such as images and videos) filed a lawsuit against the creators of Stable Diffusion (a previously mentioned AI image generator).<sup>77</sup> In the case, it's alleged that

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<sup>69</sup> Frank L. Gerratana, Michael R. Graif and Sebastian A. Navarro, '*Lensa: Are AI Art Generators Copyright Infringers?*' (Lexology, 15 February 2023) <<https://www.lexology.com/library/detail.aspx?g=70427681-3bd3-4535-a858-de69589f75dc>> accessed 2 June 2023

<sup>70</sup> '*Copyright Law Overview*' (CLARIN) <<https://www.clarin.eu/content/clic-overview-copyright-law>> accessed 2 June 2023

<sup>71</sup> James Vincent, '*The scary truth about AI copyright is nobody knows what will happen next*' (The Verge, 15 November 2022) <<https://www.theverge.com/23444685/generative-ai-copyright-infringement-legal-fair-use-training-data>> accessed 2 June 2023

<sup>72</sup> Oleksandr Bulayenko and others, '*AI Music Outputs: Challenges to the Copyright Legal Framework – Part II*' (Kluwer Copyright Blog, 25 April 2022) <<http://copyrightblog.kluweriplaw.com/2022/04/25/ai-music-outputs-challenges-to-the-copyright-legal-framework-part-ii/>> accessed 2 June 2023

<sup>73</sup> Yusuke Hisashi, '*AI vs. IP: Who's Responsible for Copyright Infringement?*' (Gamma Law, 21 April 2023) <<https://gammalaw.com/ai-vs-ip-whos-responsible-for-copyright-infringement/>> accessed 2 June 2023

<sup>74</sup> Ibid

<sup>75</sup> Mukherjee S, Chee FY, Coulter M, '*EU proposes new copyright rules for generative AI*' (28 April 2023) Reuters <<https://www.reuters.com/technology/eu-lawmakers-committee-reaches-deal-artificial-intelligence-act-2023-04-27/>> accessed 11 May 2023

<sup>76</sup> Ryan Morrison, '*EU says generative AI makers must declare copyrighted content*' (Tech Monitor, 28 April 2023) <<https://techmonitor.ai/technology/ai-and-automation/generative-ai-european-union-eu-copyright>> accessed 2 June 2023

<sup>77</sup> Blake Brittain, '*Getty Images lawsuit says Stability AI misused photos to train AI*' (Reuters, 6 February 2023) <<https://www.reuters.com/legal/getty-images-lawsuit-says-stability-ai-misused-photos-train-ai-2023-02-06/>> accessed 2 June 2023

Stable Diffusion infringed upon Getty Images' intellectual property 'on a staggering scale',<sup>78</sup> by using Getty Images' material to train its AI model. A similar class action lawsuit has been filed by three artists (also situated in the US) against two AI model creators (Stability AI and MidJourney) as well as the 'online art community' DeviantArt<sup>79</sup>. Here, they similarly claim that their content was used to train AI models without their consent, thereby infringing upon their copyright.

In both of these cases the legal system is being tasked with clarifying what are called "derivative works" under the intellectual property laws when relating to AI technologies<sup>80</sup> as well as the US court's interpretation of fair use laws (which do not apply to EU citizens). The Harvard Business Review cites Google's successful defense of a lawsuit, claiming that its transformation of text from books for its search engine was lawful in the US, a potential precedent for AI model developers/users to use copyrighted materials.<sup>81</sup> Further legislation, particularly concerning EU law, is discussed in the next chapter, whereas the fourth chapter compares the EU and US legal frameworks

### 2.3.2 Practical Difficulties for Copyright Holders to Trigger Protection

Copyright holders also have an interest in protecting their works from unauthorized use and potential infringement by AI-generated content. Owners of copyrighted materials may pursue legal action against (potentially) infringing parties to stop such unauthorized use.

However, they also face the potential challenge of having to identify and address said copyright infringement in this very specific context of AI-generated works. And with this being an international issue where different countries may have different rules and interpretations – e.g. fair use & transformative works principles in the US – it only becomes more complicated. These issues outlined will be further discussed below.

#### 2.3.2.1 Identify Infringement

One of the major difficulties for copyright holders whose content is infringed upon by AI generated content, is that they must be able to identify that their works have been used in such a model. In the case of Getty images, identifying and demonstrating that their content was used would be comparably straightforward to prove given that the output of such models often even includes the Getty images

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<sup>78</sup>IN THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF DELAWARE, GETTY IMAGES (US), INC. v. STABILITY AI, INC. Case 1:23-cv-00135-UNA

<sup>79</sup> Blake Brittain, 'Lawsuits accuse AI content creators of misusing copyrighted work' (Reuters, 17 January 2023) <<https://www.reuters.com/legal/transactional/lawsuits-accuse-ai-content-creators-misusing-copyrighted-work-2023-01-17/>> accessed 2 June 2023

<sup>80</sup> Gil Appel, Juliana Neelbauer and David A Schweidel, 'Generative AI Has an Intellectual Property Problem' (Harvard Business Review, 7 April 2023) <<https://hbr.org/2023/04/generative-ai-has-an-intellectual-property-problem>> accessed 2 June 2023

<sup>81</sup> Ibid

watermark in the end result.<sup>82</sup> However, for other copyright holders this may be more difficult to prove.

As AI models advance in complexity and sophistication, it may become more difficult not only distinguish between human-made works and AI-generated works but also to differentiate from works that closely resemble copyrighted materials.<sup>83</sup> Copyright holders therefore may need to develop new tools to monitor and detect potential infringement in the age of artificially generated content.<sup>84</sup> An early example of such a tool is Glaze, a research project from the University of Chicago in the US. It is a free, non-commercial app for artists that uses a high tech 'cloaking' technique allowing them to help combat and identify the unauthorized usage of their intellectual property.<sup>85</sup>

As was noted above, the EU may be likely to institute a new rule where AI developers have to disclose whether or not their model uses copyrighted material.<sup>86</sup> However, as of the time of writing this has not (yet) been imposed into EU law, and hence, will still – for the time being – pose an issue for the holders of copyrighted material used by AI models.

### 2.3.2.2 Prove Infringement

Besides the models themselves being created with copyrighted materials, such models might not always be public (or accessible for copyright holders). Here, another issue arises where copyright holders will need to be able to prove infringement based on the output of a model. In the EU this would require demonstrating that the AI-generated work has copied at least a substantial part of the original work, possibly violating the copyright holder's exclusive rights over the work in question.

Proving such infringement might be further complicated by AI-generated works often involving multiple layers of transformation



Figure 1: Still of an AI-generated video clearly displaying the Shutterstock logo

and processing, which in turn may further blur the direct link between the original work and the

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<sup>82</sup> Ashley Belanger, 'Getty sues Stability AI for copying 12M photos and imitating famous watermark' (Ars Technica, 6 February 2023) <<https://arstechnica.com/tech-policy/2023/02/getty-sues-stability-ai-for-copying-12m-photos-and-imitating-famous-watermark/>> accessed 2 June 2023

<sup>83</sup> Harsha Gangadharbatla, 'The Role of AI Attribution Knowledge in the Evaluation of Artwork' (2022) 40 Empirical Studies of the Arts

<sup>84</sup> Appel, Neelbauer, and Schweidel, 'Generative AI Has an Intellectual Property Problem' (HBR, 2023)

<sup>85</sup> Natasha Lomas, 'Glaze protects art from prying AIs' (TechCrunch, 17 March 2023) <<https://techcrunch.com/2023/03/17/glaze-generative-ai-art-style-mimicry-protection>> accessed 2 June 2023

<sup>86</sup> Ryan Morrison, 'EU says generative AI makers must declare copyrighted content' (Techmonitor, 28 April 2023) <<https://techmonitor.ai/technology/ai-and-automation/generative-ai-european-union-eu-copyright>> accessed 2 June 2023

infringing work. For instance, a model can be trained to transform a copyrighted work into the style of another artist, which may then render the output not recognizable as the original copyrighted work.

### 2.3.2.3 Enforcement

Another difficulty once all the above has been identified and proven is to enforce the intellectual property copyrights that the copyright owner possesses. As mentioned above, the legal systems pertaining to copyright may differ throughout the world, and with many of the AI models coming from outside of the European Union this may further complicate enforcement strategies. For instance, what constitutes copyright infringement in the EU might fall under fair use (and may therefore be permissible) in the United States.

However, the good news here is that trademark attorneys have well-established methods for sending out notifications to notify and enforce rights against an infringer by for example sending a cease-and-desist or licensing demand letter or directly filing an infringement claim.<sup>87</sup> On the downside, a cease-and-desist letter is non-binding and therefore has no legal effect.<sup>88</sup> And filing an infringement claim may be expensive and complicated to begin for the right holders. Therefore, in the absence of a clear and easily navigable framework for copyright holders to enforce their rights, the enforcement problem becomes increasingly relevant.

## 2.4 Interim Conclusion on the Literature

As highlighted in the literature review, copyright owners are at a crossroads. Whereas on the one hand, AI provides opportunities for content creation, and hence economic value ('growing the pie'), it also raises important legal questions regarding ownership and protection ('dividing the pie'). Furthermore, the global nature of AI models and their generated content raises questions in regard to jurisdiction. This adds another layer of complexity to the enforcement of such laws.

Furthermore, AI has the potential to infringe upon a copyright owner's exclusive rights. Such as the right to reproduce and distribute their work, which (partially) undermines the value of their copyright. This could have wide-ranging implications both economically and legally.

Thereby, the literature review has made clear that the interplay between copyright protection and AI-models and their generated content presents a complex landscape filled with legal and economic implications for the European Union, its Member States and the copyright holders, owners and users of AI models. Issues such as identifying and proving infringement from a copyright owners perspective

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<sup>87</sup> Appel, Neelbauer, and Schweidel, 'Generative AI Has an Intellectual Property Problem' (HBR, 2023)

<sup>88</sup> Cornell Law School, 'Cease and desist letter' (2021) <[https://www.law.cornell.edu/wex/cease\\_and\\_desist\\_letter](https://www.law.cornell.edu/wex/cease_and_desist_letter)> Accessed 26 June 2023



– especially when combined with the transnational nature of AI (and other digital) developments – impose substantial challenges for the copyright owners, creators, and other stakeholders involved regarding the enforcement of their rights.

In summary, the challenges presented by AI models and content necessitate an exploration how the legal framework can accommodate copyright owners and/or creators of copyrighted material. Consequently, the next chapter will focus on the legal framework(s) involved, with a particular focus on the EU’s perspective. Nonetheless, transnational and US-specific copyright laws will also receive brief attention, as they are also relevant for EU-based copyright owners who now have to deal with the topic of AI models and AI-generated content.

## Chapter 3 – Legal Framework on Copyright & AI

### 3.1 Introduction to the Legal Framework on Copyright and AI

Having explored the legal and economic bases for copyright protection, as well as having discussed the problems faced by copyright owners and creators, it is pertinent to delve deeper into how these legal rights came into existence, their impact globally, the EU legal framework and that of its Member States. Additionally, this chapter further analyzes how these legal frameworks may or may not satisfy the needs of copyright holders and creators.

### 3.2 International Legal Copyright Framework

International copyright law has been in place for many years now. It is widely acknowledged that the start of such international copyright protection can be traced back to the *Berne Convention for the Protection of Literary and Artistic Works* of 1886. This international convention, held in the Swiss city of Berne, established (minimum) standards for international copyright protection.<sup>89</sup> Despite numerous ratifications after 1886<sup>90</sup> it has currently been signed by 181 different parties as of the time of writing.<sup>91</sup>

The depository of the Berne Convention is the WIPO (World Intellectual Property Organization) – one of the 15 specialized agencies of the UN – which is the largest international organization established to: “to promote the protection of intellectual property throughout the world through cooperation

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<sup>89</sup> World Intellectual Property Organization (WIPO), '*Berne Convention for the Protection of Literary and Artistic Works*' <<https://www.wipo.int/treaties/en/ip/berne/>> accessed 2 June 2023

<sup>90</sup> United Nations Treaty Collection (UNTC) <<https://treaties.un.org/pages/showdetails.aspx?objid=0800000280115ec9>> accessed 2 June 2023

<sup>91</sup> World Intellectual Property Organization (WIPO), '*Convention Establishing the World Intellectual Property Organization (as amended on September 28, 1979) (Authentic text)*' <<https://www.wipo.int/wipolex/en/text/283854>> accessed 2 June 2023

among States and, where appropriate, in collaboration with any other international organization [...].”<sup>92</sup>

The reason why this is important background information is that The Berne Convention included the first requirements to streamline a large portion of the world’s copyright protection rules, such as needing to protect works made by citizens of other signatories of the Berne Convention.<sup>93</sup> Thereby underscoring the possibility of global harmonization of copyright rules to some extent, something which may be especially important given the inherent international nature of AI programs, as they can easily travel cross-border through the internet.

### 3.2.1 Member State Level Copyright Protection Three-Step Test

Although several EU Directives and Regulations described in detail below have further tried to harmonize EU copyright laws, there are still many parts of copyright protection (and the enforcement thereof), which are grounded in national law.<sup>94</sup> In the EU, copyright protection is largely based on the principles from the Berne Convention and in the Directives discussed below. Challenges still persist regarding the implementation of these laws across different Member States.<sup>95</sup> An example of this would be the three-step test.

Originating from Article 9 of the Berne Convention, the three-step test states that: “(1) Authors of literary and artistic works protected by this Convention shall have the exclusive right of authorizing the reproduction of these works, in any manner or form. (2) It shall be a matter for legislation in the countries of the Union to permit the reproduction of such works in certain special cases, provided that such reproduction does not conflict with a normal exploitation of the work and does not unreasonably prejudice the legitimate interests of the author. (3) Any sound or visual recording shall be considered as a reproduction for the purposes of this Convention.”<sup>96</sup>

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<sup>92</sup> World Intellectual Property Organization, *Convention Establishing the World Intellectual Property Organization* pdf (Signed at Stockholm on July 14, 1967 and as amended on September 28, 1979)

<sup>93</sup> Cornell Law School, 'Berne Convention' (Wex Legal Dictionary, November 2021) [https://www.law.cornell.edu/wex/berne\\_convention](https://www.law.cornell.edu/wex/berne_convention) accessed June 1, 2023

<sup>94</sup> Madiaga, T., 'EU Copyright Reform: Revisiting the Principle of Territoriality' (2015) European Parliamentary Research Service Briefing, <[https://www.europarl.europa.eu/RegData/etudes/BRIE/2015/568348/EPRS\\_BRI\(2015\)568348\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2015/568348/EPRS_BRI(2015)568348_EN.pdf)> accessed 20 April 2023.

<sup>95</sup> Ibid

<sup>96</sup> *Berne Convention for the Protection of Literary and Artistic Works (Paris Text 1971) art 9* <<https://www.law.cornell.edu/treaties/berne/9.html>> accessed 4 June 2023

Although several directives and acts refer to the test,<sup>97</sup> the three-step rule was implemented most notably through the 2001 Information Society (InfoSoc) Directive (2001/29/EC)<sup>98</sup> and the DSM (Digital Single Market) Act of 2019.<sup>99</sup> However, despite being disposed through an EU Directive twice, there still are variations in the implementation of this rule across EU Member States.<sup>100,101</sup> Article 5(5) of the 2001 InfoSoc Directive is considered to affirm the Berne three-step test in EU law. The article provides a broad exception, stating that: “The exceptions and limitations provided for [...] shall only be applied in certain special cases which do not conflict with a normal exploitation of the work or other subject-matter and do not unreasonably prejudice the legitimate interests of the rightholder”.<sup>102</sup> This formulation echoes the conditions laid out in the Berne three-step test, thus solidifying its place in EU law.

This holds relevance for AI as it is currently uncertain whether the usage of copyrighted material falls under the exception provided by three-step test and the exceptions outlined in the InfoSoc Directive under article 5. In a response to the WIPO (World Intellectual Property Organization), the British Copyright Council said that it was of the opinion that such AI-generated material made with generative AI models would not fall under the three-step test as it noted that it would “unfairly prejudice the legitimate interest of rightholders to be remunerated for their creativity”.<sup>103</sup>

Research from intellectual property professor Jonathan Griffiths who is an expert on the implementation of the three-step test in EU law writes that the interpretation and application of the three-step test can vary among different European national courts. This means that a local court may adopt a strict or narrow approach to applying the test, rendering it devoid of any settled legal meaning. Consequently, Griffiths argues that the test is incapable of functioning as a legal tool.<sup>104</sup> However, it could also be argued that this ability for a local court to take a different approach on this test may

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<sup>97</sup> Griffiths, Jonathan. *"The 'Three-Step Test' in European Copyright Law-Problems and Solutions."* Queen Mary School of Law Legal Studies Research Paper 31 (2009).

<sup>98</sup> Wymeersch, P., *'EU Copyright Exceptions and Limitations and the Three-Step Test: One Step Forward, Two Steps Back'* (2023) GRUR International, ikad019, <<https://doi.org/10.1093/grurint/ikad019>> accessed 20 April 2023.

<sup>99</sup> Ibid

<sup>100</sup> Ibid

<sup>101</sup> Griffiths, J., *'The "Three-Step Test" in European Copyright Law - Problems and Solutions'* (2009) Queen Mary School of Law Legal Studies Research Paper No. 31/2009, *The Intellectual Property Quarterly*, forthcoming, <[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1477408](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1477408)> accessed 20 April 2023.

<sup>102</sup> *2001 Information Society (InfoSoc) Directive (2001/29/EC) Article 5(5)*

<sup>103</sup> British Copyright Council, *'WIPO Draft Issues Paper on Intellectual Property and Artificial Intelligence'* (February 2020) <[https://www.wipo.int/export/sites/www/about-ip/en/artificial\\_intelligence/call\\_for\\_comments/pdf/org\\_bcc.pdf](https://www.wipo.int/export/sites/www/about-ip/en/artificial_intelligence/call_for_comments/pdf/org_bcc.pdf)> accessed 4 June 2023

<sup>104</sup> Griffiths, Jonathan, *'The 'Three-Step Test' in European Copyright Law - Problems and Solutions'* (September 22, 2009). Queen Mary School of Law Legal Studies Research Paper No. 31/2009, *The Intellectual Property Quarterly*, Forthcoming, Available at SSRN: <https://ssrn.com/abstract=1476968>

introduce additional flexibility if the test were to be handled differently. Something which will be discussed at length when comparing EU copyright law to U.S. copyright law in the following chapter, as well as further down in the recommendations.

To summarize, as noted, there is no clear-cut worldwide exemption for the usage of copyrighted material in AI models, as Article 9(2) of the Berne convention allows for variation on an individual signatory level, and with so many differences in the implementation of local courts, it would be time to look at the EU legislation connected to this topic, to see if there would be any exemptions there which may apply.

### 3.3 The EU's Legal Framework on Copyrighted Materials

In light of the European Union's objective to establish a single market, harmonized copyright protection across all its Member States is crucial. There have been numerous copyright Directives and Regulations enacted by the EU. An example of this being the 2001 Information Society Directive (2001/29/EC), which harmonized exclusive rights for the reproduction, distribution and communication of copyrighted materials as well as its limitations and exceptions.<sup>105</sup> This has later on been ratified multiple times, most notably with the 2019 Copyright Directive which introduced additional provisions to the copyright laws at that time.<sup>106</sup> Finally, the Directive on Copyright in the Digital Single Market of 2019 is the most recent relevant piece of legislation.<sup>107</sup>

#### 3.3.1 Member State- & EU-Level Protection

As noted earlier, prior to the introduction of the three-step test, certain aspects of copyright protection and enforcement are grounded in national law.<sup>108</sup> Although there are thirteen directives and two regulations regarding copyright in the European Union,<sup>109</sup> Member States themselves are required to interpret and can sometimes choose what to incorporate into law. For instance, when referring back to the InfoSec Directive (2001/29/EC). Here, besides the mandatory exemptions to be

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<sup>105</sup> 'Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society' [2001] OJ L167/10 <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32001L0029> accessed June 1, 2023

<sup>106</sup> European Commission, 'Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society' [2001] OJ L167/10.

<sup>107</sup> European Commission, 'Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on copyright and related rights in the Digital Single Market and amending Directives 96/9/EC and 2001/29/EC' [2019] OJ L130/92.

<sup>108</sup> Madiega, T., 'EU Copyright Reform: Revisiting the Principle of Territoriality' (2015) European Parliamentary Research Service Briefing, <[https://www.europarl.europa.eu/RegData/etudes/BRIE/2015/568348/EPRS\\_BRI\(2015\)568348\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2015/568348/EPRS_BRI(2015)568348_EN.pdf)> accessed 20 April 2023.

<sup>109</sup> European Commission, 'The EU copyright legislation' <<https://digital-strategy.ec.europa.eu/en/policies/copyright-legislation>> accessed 18 June 18, 2023.

implemented by all Member States, it also includes optional exceptions, for instance those relating to private copying- and the usage of copyrighted materials by libraries, museums, and archives among others.<sup>110</sup> Hence, there may be some differences in copyright laws regarding EU Member States, even if it were to be decided upon on an EU-level. Another reason is that Directives under EU law allow for Member States may lead to differences is that although that the Directive may be binding as to the result to be achieved, the Member States addressed are left with the power to choose the form and methods to achieve the result.<sup>111</sup>

In addition to the disparities in Member State laws, which refer to exemptions granted by Article 5 of the InfoSec directive, variations also exist in how Member States address their enforcement monopoly function accorded by copyright law. Research from Paul Torremans who – among other things – writes about the collecting societies (an organization that licenses and manages copyrighted works on behalf of copyright owners) and monopoly power these agencies hold as sole collector of licensing fees, notes that the collecting societies in the EU for instance may be provided a legal monopoly such as in Austria.<sup>112</sup> Or how other countries may rely on specific regulation as in German law.<sup>113</sup> This shows that dealing with such monopoly positions provided by copyright is not new for legislators.

Although strides have been made to further harmonize copyright legislation within the European Union, challenges persist due to interpretative scope in some of the Directives, and the enduring influence of pre-EU copyright laws on Member States' practices. These complexities necessitate a deeper examination of the broader EU copyright framework, particularly regarding AI models and copyrighted data usage.

### 3.3.2 Four Steps to Copyright

Before embarking on a detailed exploration of the EU's legal framework concerning the use of copyrighted materials to generate AI models, it is pertinent to first understand when an entity is deemed 'copyrightable' under EU law, and how this applies to AI-generated content. This is done by using an additional, EU-level test, named the 'four-step test'.

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<sup>110</sup> Senftleben, Martin. "Comparative approaches to fair use: an important impulse for reforms in EU copyright law." *Methods and perspectives in intellectual property*. Edward Elgar Publishing, 2013. 30-68.

<sup>111</sup> European Commission 'Consolidated version of the Treaty on the Functioning of the European Union – Part Six – Institutional and financial provisions – Title I – Institutional provisions – Chapter 2 – Legal acts of the Union, adoption procedures and other provisions – Section 1 – The legal acts of the Union – Article 288' (ex Article 249 TEC) (OJ C 202, 7.6.2016, pp. 171–172).

<sup>112</sup> Torremans, Paul, ed. 'Copyright law: a handbook of contemporary research.' Edward Elgar Publishing, 2009. p263

<sup>113</sup> Ibid

Initially, before anything can be copyrighted, it must qualify as what is known as a protected ‘work’. Here, it is important to be noted that there is no EU-wide definition of the term ‘work’ that is granted copyright protection, as some EU directives refer to Article 2 of the Berne Convention whereas others define the term in their own *sui generis* way.<sup>114</sup> There are two conditions which normally need to be satisfied for an output of creativity to qualify as a work, namely: 1. The subject matter must be “original”<sup>115,116</sup> and 2. The subject matter must be identifiable with sufficient precision and objectivity.<sup>117,118</sup> To help further establish if (for instance an AI assisted output) can enjoy copyright protection, the following steps of the ‘four-step’ test apply:

1. Is there a production in the literary, scientific or artistic domain?<sup>119</sup>
  - a. The first test evaluates the nature of the production by considering whether or not there is a production in the literary, scientific or artistic domain. Article 2(1) of the Berne Convention lists several categories among those are compositions, photos and films.<sup>120</sup>
2. Has human intellectual effort been exerted (to create the work)?<sup>121</sup>
  - a. AI-generated works must be a result of human intellectual effort.<sup>122</sup> In a previous case – the *Painer* case – the CJEU clarified that it is possible to create such works of authorship with a machine.<sup>123,124</sup> However, this does not necessarily mean that a

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<sup>114</sup> Eva Ametsbichler and Stefan Haßdenteufel, 'Snapshot: The Scope of Copyright in European Union' (2021) <<https://www.lexology.com/library/detail.aspx?g=1013cebf-9e8e-41a0-bac0-595f0e04133b>> accessed 22 May 2023

<sup>115</sup> *Infopaq International A/S v Danske Dagblades Forening (Case C-5/08) [2009] ECR I-06569*

<sup>116</sup> Bengtsson, Henrik, 'EU harmonisation of the copyright originality criterion' (June 2012) Delphi <<https://www.delphi.se/uploads/2018/09/120618euharmonisationbengtsson-1.pdf>> accessed 2 May 2023

<sup>117</sup> NYU Journal of Intellectual Property & Entertainment Law 'Should Taste Be Copyrightable? The Court of Justice of the European Union Thinks Not' (2019) Journal of Intellectual Property and Entertainment Law Blog <<https://blog.jipel.law.nyu.edu/2019/08/should-taste-be-copyrightable-the-court-of-justice-of-the-european-union-thinks-not/>> accessed 2 May 2023

<sup>118</sup> Pieter De Grauwe and Sacha Gryspeerd, 'Artificial intelligence (AI): The qualification of AI creations as "works" under EU copyright law' <<https://www.gevers.eu/blog/artificial-intelligence/artificial-intelligence-ai-the-qualification-of-ai-creations-as-works-under-eu-copyright-law/>> (Gevers, 22 November 2022) Accessed on: May 2nd 2023

<sup>119</sup> Ibid

<sup>120</sup> *Berne Convention for the Protection of Literary and Artistic Works* (adopted 9 September 1886, last amended 28 September 1979) 828 UNTS 221, art 2(1)

<sup>121</sup> Ibid

<sup>122</sup> P De Grauwe and S Gryspeerd, 'Qualification of AI Creations as "Works" under EU Copyright Law: Four-Step Test' (Lexology, 29 August 2022) <<https://www.lexology.com/commentary/intellectual-property/european-union/gevers/qualification-of-ai-creations-as-works-under-eu-copyright-law-four-step-test>> accessed 1 May 2023.

<sup>123</sup> Ibid

<sup>124</sup> CJEU, 1 December 2011, C-145/10, Painer

production solely made by an AI may be copyright protected as an output produced without human intervention is excluded from copyright protection.<sup>125</sup>

3. In regard to originality/creativity, does it show the author's own intellectual creation?<sup>126</sup>
  - a. Originality is one of the cornerstones of EU copyright law. To illustrate this point we can look at the famous *Infopaq International A/S v. Danske Dagblades Forening* case. Here, the Court of the European Union (CJEU) established that for a work before it to be protected it must be "original in the sense that it is its author's own intellectual creation."<sup>127</sup>
4. Does it express human creativity?<sup>128</sup> And can the work be identified with sufficient precision and objectivity?<sup>129</sup>
  - a. The last of the four criteria is that the work needs to be identifiable as an expression of human creativity. In other words, creative choices need to be expressed in the final product, as ideas that are not given shape or form cannot be qualified as being works under EU law.<sup>130</sup> Therefore, it can be concluded that the concept of work requires not only human intervention, but also some degree of intent.<sup>131,132</sup>

From this, we can deduce that a fully AI-generated outcome such as one generated by Dall-E, Midjourney or Stable Diffusion which solely operates based on a prompt, are unlikely to receive copyright protection. This is due to such AI-generated images neither fulfilling the requirement of human intellectual effort, as mandated by copyright law, nor that the requirement for human creativity and a certain degree of intent – both of which are impossible when the production is entirely

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<sup>125</sup> P. Bernt Hugenholtz & João Pedro Quintais, 'Copyright and Artificial Creation: Does EU Copyright Law Protect AI-Assisted Output?' (2021) IIC-52 1190–1216.

<sup>126</sup> Ibid

<sup>127</sup> Case C-5/08 *Infopaq International A/S v Danske Dagblades Forening* (ECR I-06569) [2009]

<sup>128</sup> P. Bernt Hugenholtz & João Pedro Quintais, 'Copyright and Artificial Creation: Does EU Copyright Law Protect AI-Assisted Output?' (2021) IIC-52 1190–1216.

<sup>129</sup> Pieter De Grauwe and Sacha Gryspeerd, 'Artificial intelligence (AI): The qualification of AI creations as "works" under EU copyright law' <<https://www.gevers.eu/blog/artificial-intelligence/artificial-intelligence-ai-the-qualification-of-ai-creations-as-works-under-eu-copyright-law/>> (Gevers, 22 November 2022) Accessed on: May 2nd 2023

<sup>130</sup> P. Bernt Hugenholtz & João Pedro Quintais, 'Copyright and Artificial Creation: Does EU Copyright Law Protect AI-Assisted Output?' (2021) IIC-52 1190–1216.

<sup>131</sup> Ibid

<sup>132</sup> Supreme Court (The Netherlands) *Zonen Endstra v. Nieuw Amsterdam* (2008) ECLI:NL:HR:2008:BC2153, HR 30.05.2008, NJ 2008, 556

outsourced to a machine – could be fulfilled.<sup>133</sup> Therefore it can be concluded that such AI-generated materials will not be able to enjoy copyright protection.

According to the EU, content which is partially AI-generated would be less likely to cause problems in the intellectual property space, whereas fully AI-generated works may cause issues in regard to who (if anyone) would actually hold the copyright as noted above.<sup>134</sup> This is also reflected when looking within American case law for instance. Here the US copyright bureau denied the copyright on an artwork, which was wholly generated using AI technologies,<sup>135</sup> but it subsequently stated that it would likely provide copyright protection to works which were (at least partly) made with some human input.<sup>136</sup>

### 3.4 The EU's Legal Framework on Copyrighted Materials in AI Models

Regarding the EU's legal framework concerning the specific usage of copyrighted material in AI models, there have been recent developments in proposed legislation, which warrant a closer look at how the regulatory field is designed at the moment. We will do so by investigating which specific pieces of legislation are relevant to this topic, and then discussing what this entails for copyright holders.

#### 3.4.1 Text and Data Mining

Dr. J. P. Quintais from the University of Amsterdam and the Wolters Kluwer copyright blog notes that the most important distinction whether or not such usage of copyrighted material would constitute a violation of copyright would be whether or not it falls under what are known as the text and data mining (TDM) exceptions in the Copyright related Digital Single Market Directive (CDSM).<sup>137</sup>

First, it is crucial to understand the EU's definition of TDM, the CDSM Directive says that: "text and data mining" means any automated analytical technique aimed at analysing text and data in digital

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<sup>133</sup> De Grauwe P, Gryspeerdt S, 'Artificial intelligence (AI): The qualification of AI creations as "works" under EU copyright law' (2022) Gevers.eu Blog <<https://www.gevers.eu/blog/artificial-intelligence/artificial-intelligence-ai-the-qualification-of-ai-creations-as-works-under-eu-copyright-law/>> accessed June 2, 2023

<sup>134</sup> European Commission, Directorate-General for Communications Networks, Content and Technology, Hartmann, C., Allan, J., Hugenholtz, P., et al., *Trends and Developments in Artificial Intelligence: Challenges to the Intellectual Property Rights Framework: Final Report* (Publications Office, 2020) <<https://data.europa.eu/doi/10.2759/683128>> accessed 2 May 2023

<sup>135</sup> Intellectual Property Helpdesk, 'AI-generated work denied copyright registration in the US – LOTR vs Lord of the Bins' (8 March 2023) <[https://intellectual-property-helpdesk.ec.europa.eu/news-events/news/ai-generated-work-denied-copyright-registration-us-lotr-vs-lord-bins-2023-03-08\\_en](https://intellectual-property-helpdesk.ec.europa.eu/news-events/news/ai-generated-work-denied-copyright-registration-us-lotr-vs-lord-bins-2023-03-08_en)> accessed 2 May 2023

<sup>136</sup> Blake Brittain, 'U.S. Copyright Office says some AI-assisted works may be copyrighted' (Reuters, 15 March 2023) <<https://www.reuters.com/world/us/us-copyright-office-says-some-ai-assisted-works-may-be-copyrighted-2023-03-15/>> accessed 2 May 2023

<sup>137</sup> João Pedro Quintais, 'Generative AI, Copyright and the AI Act' (Kluwer Copyright Blog, 9 May 2023) <<https://copyrightblog.kluweriplaw.com/2023/05/09/generative-ai-copyright-and-the-ai-act/>> accessed June 1, 2023



form in order to generate information which includes but is not limited to patterns, trends and correlations;” Thus, this definition of TDM may cover the training activities needed to develop an AI model.

The CDSM Directive of 2019 includes two TDM exceptions that are particularly relevant for AI models and copyright creators and owners. Namely, Article 3 which relates to text and data mining for the purpose of scientific research,<sup>138</sup> as well as Article 4, which relates to the general exception for “lawfully accessible works and other subject matter for the purposes of text and data mining”.<sup>139</sup> The latter is also known as the “commercial” exception, as it seemingly does not differentiate between non-profit (e.g. academic) and for-profit text and data mining.<sup>140</sup>

#### *3.4.1.1 Article 3 – Academic TDM Exception*

Returning to the relevant articles, Article 3 mentions TDM for academic purposes. It specifically mentions research organizations and cultural heritage institutions to be able to use TDM to carry out (for the purposes of scientific research) TDM activities of works and other subject matter to which they have lawful access, among other things.<sup>141</sup>

As the primary focus of this thesis pertains to the broader utilization of copyrighted material in AI models, particularly outside of an academic setting, the discussion will now continue with Article 4 on the general TDM exception.

#### *3.4.1.2 Article 4 – General TDM Exception*

Article 4 appears to be more relevant to this thesis, as we mostly investigate the usage of copyrighted material in (for-profit) AI models which are widely used and openly shared on the internet. This Article provides an exception “for reproductions and extractions of lawfully accessible works and other subject matter for the purposes of text and data mining [...] for as long as is necessary for the purposes of text and data mining.”<sup>142</sup>

It does, however, provide copyright owners some protection. Namely, paragraph three mentions the following: “The exception [...] shall apply on condition that the use of works [...] has not been expressly reserved by their rightholders in an appropriate manner, such as machine-readable means in the case of content made publicly available online”.<sup>143</sup> Hence, the right holders should be able to provide a

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<sup>138</sup> Directive (EU) 2019/790, art 3.

<sup>139</sup> Directive (EU) 2019/790, art 4.

<sup>140</sup> 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 June 1, 2023

<sup>141</sup> Directive (EU) 2019/790, art 3.

<sup>142</sup> Directive (EU) 2019/790, art 4(1) & art 4(2).

<sup>143</sup> Directive (EU) 2019/790, art 4(3)

machine-readable manner of “opting out” of their work being used for TDM. Therefore, this is also known as the “opt-out” provision<sup>144</sup> This 'opt-out' provision holds particular significance for copyright holders and AI developers. As it empowers copyright holders to determine whether and how AI developers can utilize their content. This important topic will be discussed in greater detail in the recommendations section of chapter five.

### 3.4.2 Copyright and the AI Act

As mentioned briefly before in this thesis, the European Commission is thinking about requiring AI model developers to disclose any copyrighted material such as images or novels used to train such a model.<sup>145</sup> According to writings from Dr. Quintais, the draft AI Act has two important additional obligations regarding the usage of copyrighted material in AI models. Namely, the first concerns transparency and disclosure. And the second refers to safeguards, also known as the content moderation obligation.<sup>146</sup>

#### 3.4.2.1 Transparency and Disclosure

Providers of generative AI models must adhere to two transparency requirements. The first (Article 52(1) of the draft AI Act) is that it must be clear for users that they are interacting with an AI system.<sup>147</sup> This article in the AI Act reads that: “Providers shall ensure that AI systems intended to interact with natural persons are designed and developed in such a way that natural persons are informed that they are interacting with an AI system, unless this is obvious from the circumstances and the context of use. [...]”.<sup>148</sup> Thus providing the first transparency requirement for AI models.

Second, Article 28b-4c of the draft AI Act compromise amendments says that they will also need to publicly share a summary of their usage of copyright protected training data.<sup>149</sup> Which reads: “without prejudice to national or Union legislation on copyright, document and make publicly available a sufficiently detailed summary of the use of training data protected under copyright law.”<sup>150</sup> This provision seemingly facilitates the opt-out criteria under Article 4 of the CDSM Directive discussed

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<sup>144</sup> J Quintais, 'Generative AI, Copyright and the AI Act'.

<sup>145</sup> Ryan Morrison, 'EU says generative AI makers must declare copyrighted content' , (2023), <<https://techmonitor.ai/technology/ai-and-automation/generative-ai-european-union-eu-copyright>> Accessed 26 June 2023

<sup>146</sup> Quintais, 'Generative AI, Copyright and the AI Act'.

<sup>147</sup> *Proposal for a Regulation of the European Parliament and of the Council on harmonised rules on Artificial Intelligence (Artificial Intelligence Act)*, COM(2021) 206 final, art 52.

<sup>148</sup> Ibid

<sup>149</sup> European Parliament, 'DRAFT Compromise Amendments on the Draft Report Proposal for a regulation of the European Parliament and of the Council on harmonised rules on Artificial Intelligence (Artificial Intelligence Act) and amending certain Union Legislative Acts (COM(2021)0206 – C9 0146/2021 – 2021/0106(COD))' (9 May 2023) <[https://www.europarl.europa.eu/meetdocs/2014\\_2019/plmrep/COMMITTEES/CJ40/DV/2023/05-11/ConsolidatedCA\\_IMCOLIBE\\_AI\\_ACT\\_EN.pdf](https://www.europarl.europa.eu/meetdocs/2014_2019/plmrep/COMMITTEES/CJ40/DV/2023/05-11/ConsolidatedCA_IMCOLIBE_AI_ACT_EN.pdf)> accessed June 1, 2023

<sup>150</sup> Ibid, Article 28b-4c

earlier by requiring the creator of AI models to publicly share such a summary of their usage of copyrighted materials.<sup>151</sup> However, how such a summary should be provided is not given in the draft AI Act.

#### 3.4.2.2 Safeguards for AI-Generated Content

Furthermore, Dr. Quintais discusses another important obligation outlined in Article 28b, paragraph 5a next to the transparency provision also contains an obligation to design and develop the model in such a way to ensure adequate safeguards against the generation of content in breach of Union law.<sup>152</sup>

This provision reads that an AI model developer must: “ensure adequate safeguards against the generation of content in breach of Union law in line with the generally acknowledged state of the art, and without prejudice to fundamental rights, including the freedom of expression,”<sup>153</sup> Nevertheless, the precise manner in which these safeguards ought to be established, extending beyond the mere documentation of copyrighted materials in a summary, remains unspecified.

It is further noted that such breaches of copyright law in the Union may refer to how a model is able to “memorize”<sup>154</sup> and show copyrighted training material verbatim based upon a specific prompt. Although its rarity is likely to depend on the content

with it mostly being an edge case,<sup>155</sup> it is more likely to occur when e.g. a character is involved as shown on the image on the right.

Having such an output be so close to already copyrighted material, may constitute a copyright infringement.<sup>156</sup> It is also noted that a possible outcome here would be the development of a filtering tool for AI providers, however, there is not much transparency on this topic.<sup>157</sup> It is also important to note that such copyright moderation discussions have also raised concerns about it possibly blocking



Figure 2 - AI-Generated images of Mickey Mouse standing in front of a McDonald's. Generated with OpenAI's Dall-E

<sup>151</sup> Quintais, 'Generative AI, Copyright and the AI Act'.

<sup>152</sup> Ibid

<sup>153</sup> European Commission, *Proposal for a Regulation of the European Parliament and of the Council on harmonised rules on Artificial Intelligence (Artificial Intelligence Act)*, COM(2021) 206 final, art 28

<sup>154</sup> Ibid

<sup>155</sup> Matthew Sag, 'Copyright Safety for Generative AI' (2023) *Houston Law Review* (forthcoming) <[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4438593](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4438593)> accessed June 1, 2023

<sup>156</sup> Quintais, 'Generative AI, Copyright and the AI Act'.

<sup>157</sup> Ibid

too much content, as there do not appear to be any specific freedom of expression (e.g. parody rights) exceptions currently, which in turn could stifle creativity and AI content production, which otherwise would be legally acceptable when done by a human.<sup>158</sup> However, the draft AI Act does not seem to have a specific section on memorization of training data, making it unclear how it fits precisely.

As previously alluded to, some AI models are able to generate 'deep fakes', content which falsely appears to be authentic/truthful. Under Article 52(3), the draft AI Act provides that such content "shall disclose that the content has been artificially generated or manipulated".<sup>159</sup> However, it does include an exception for law enforcement and those exercising the right of freedom of expression and arts/sciences. Subjected to 'appropriate safeguards' for third parties. These safeguards are not further explained.

Having discussed the key aspects of the EU's copyright rules, especially those relating to AI-models and their generated content, as well as having discussed how copyright laws apply to the ownership and protection of work used and generated by AI models (TDM + AI legislation), we can continue with the following topic. First this thesis will address the interim conclusion on the legal framework, followed by the legal analysis and benchmarking EU law against the US' fair use principles.

### 3.5 Interim Conclusion on the Legal Framework

Now it is important to conclude on the consequences for the copyright owners that arise from the legal framework's application. The investigation began by examining the presence of global legislation pertaining to the usage of copyrighted material in AI models. Having noted how copyright laws apply to the ownership and protection of the work used (and generated) by AI models, we then discussed the three-step test on exceptions given by the Berne convention, and discussed the British Copyright Council's response to the WIPO on it. As we did not find a pertinent global provision for EU copyright owners, we then turned our attention to specific EU legislation, evaluating whether certain works could be subject to copyright protection through a four-step process. Here it was concluded that AI content generated on merely a prompt would not be likely to receive copyright protection, and is excluded from receiving so.

The provisions of Text and Data Mining (TDM) described in the CDSM Directive, and the upcoming AI Directive were found to include the most important exceptions within this framework. It is important to keep in mind that the CDSM Directive places some restrictions on the authority typically exerted by copyright owners over their works, although it provides an opt-out mechanism.

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<sup>158</sup> Ibid

<sup>159</sup> *Proposal for a Regulation of the European Parliament and of the Council on harmonised rules on Artificial Intelligence (Artificial Intelligence Act), COM(2021) 206 final, art 52(3)*

The onus is on copyright holders to take aggressive steps to permit the use of their creations. The concerns raised by the British Copyright Council regarding the potential loss or diminution of appropriate compensation for rights holders underscore the significance of these legislative safeguards in terms of economic and legal protection.

We proceeded to delve into the draft AI Act, anticipated to take effect around 2025.<sup>160</sup> Which noted some additional protections for copyright owners. Specifically, it addresses transparency and disclosure (similar to the TDM exception) and provides additional safeguards for the protection of AI-generated content. However, it is important to note that further development is required for the latter aspect due to several reasons. Namely the limited transparency concerning the discussed list of copyrighted materials used in AI models to be published by developers, preliminary research indicating that verbatim memorization by AI models is an exceptional scenario, and general vagueness regarding the implementation for most of the safeguards discussed. These considerations will be discussed in-depth during the recommendations section.

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<sup>160</sup> Ibid

## Chapter 4 – Analysis & US Benchmark

This chapter will delve deeper into the analysis of several of the concerns which arise regarding the balancing of the copyright holders' rights with those of AI developers, and their corresponding economic value. We will benchmark the EU legislation discussed above with the US principles of fair use, to show another manner of handling such intricate copyright related issues regarding the usage of copyrighted materials in AI models. It is important to note that this analysis only focuses on the subsection of copyright law and AI-generated content, and does not investigate fair use and copyright in its entirety..

### 4.1 Why the USA Benchmark & A Note on Fair Use

While not directly applicable to EU law, it is important to spend time on the differences between US copyright law and EU copyright law given the significant discrepancies between the two regarding how they deal with allowing third parties to work with copyrighted materials. This becomes significant because several popular AI models, such as ChatGPT and other OpenAI models, Midjourney, etc. are all based in – or originate from – the United States of America. Hence, those US domiciled creators of AI models and content may enjoy more flexible copyright rules than their EU counterparts as we will see further down in this chapter.

To begin with, the US operates under what is known as the Fair Use principle<sup>161</sup>, meaning that copyrighted material is allowed to be used for works classified as non-infringing if they are transformative. Transformative uses are, in essence: “uses that add something new, with a further purpose or different character, and do not substitute for the original use of the work”.<sup>162</sup> The EU does not have such an equivalent rule, and instead relies on codified exceptions to provide with acceptable uses of copyrighted materials.<sup>163</sup>

To illustrate the flexibility provided by the American fair use system and further analyze this system against the one of the EU, research from Prof. Dr. Senftleben will be used. Regarding the EU, he notes that European countries tend to have a closed catalogue of carefully defined exceptions for copyright (e.g. Article 5 of the InfoSoc Directive)<sup>164</sup> unlike in the United States where courts may conduct a case-

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<sup>161</sup> US Copyright Office, 'Fair Use Index' (U.S. Copyright Office) <<https://www.copyright.gov/fair-use/>> accessed 4 June 2023

<sup>162</sup> Ibid

<sup>163</sup> Lexis Nexis, 'Copyright—European Union—Q&A guide' (updated 26 September 2022, Lexis Nexis) <<https://www.lexisnexis.co.uk/legal/guidance/copyright-european-union-q-a-guide>> accessed 4 June 2023

<sup>164</sup> Senftleben, Martin. "Comparative approaches to fair use: an important impulse for reforms in EU copyright law." *Methods and perspectives in intellectual property*. Edward Elgar Publishing, 2013. 30-68.

by-case analysis to determine whether or not a given use can be exempted from the control of the copyright owner.<sup>165 166</sup>

Prof. Senftleben argues that the fair use approach in the U.S. has a utilitarian basis, viewing copyright not as an inherent right but as a prerogative conferred to boost societal well-being by ensuring a sufficient supply of knowledge and information.<sup>167</sup> Therefore, this basis only justifies rights which are strong enough to induce the desired production of intellectual work. Consequently, the exclusive rights of authors merit their own distinct positive legal enactment.<sup>168</sup>

From an EU perspective, author Annabelle Littoz-Monnet notes that the EU copyright policy is the complex outcome of the interplay between subnational, national and EU-level policy actors, which all try to 'frame the policy debate' in order to control policy and policy outcomes in a manner that suits themselves best.<sup>169</sup> Going back to research from Senftleben, he notes that the primary benefit of the Anglo-American fair use approach is the aforementioned flexibility as the adaptable framework allows courts to modify copyright limitations according to evolving social, cultural and economic needs. The 'fair use' doctrine empowers US judges to adjust to novel situations, such as a rapidly changing digital landscape, reducing the need for frequent legislative updates, which struggle to keep up with rapid technological advancements.<sup>170</sup> This is one of the main reason for investigating the fair use principles on AI-generated content. To illustrate, an investor or inventor who creates AI startups may be more willing to go to a jurisdiction that is able to provide legal clarity in months over one that would take several years to do so. Thereby providing a significant benefit to the fair use principle.

Under the fair use principles, individuals are permitted to utilize copyrighted materials to generate new works without the explicit permission of the copyright holder. This is important as this results in practices that may be legal from a US perspective, but may become problematic when an EU situated end-user uses such a service to create AI-generated content. Especially as some US based AI model providers offer (as written in their terms of service) the ability for end-users to sell-on their AI-generated content as if it is their own.<sup>171</sup> Having such clauses may further exacerbate the differences

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<sup>165</sup> Ibid

<sup>166</sup> Cf. *Sony Corp. of America v. Universal City Studios, Inc.*, 464 U.S. 417 (1984), section IV.B

<sup>167</sup> Senftleben, Martin, 'Comparative approaches to fair use' Edward Elgar Publishing, 2013. 30-68

<sup>168</sup> Ibid

<sup>169</sup> Littoz-Monnet, Annabelle. "Copyright in the EU: droit d'auteur or right to copy?." *Journal of European Public Policy* 13.3 (2006): 438-455.

<sup>170</sup> Senftleben, Martin. "Beperkingen á la carte: Waarom de Auteursrechtlijn ruimte laat voor fair use." (2003): 10.

<sup>171</sup> OpenAI, 'Can I sell images I create with DALL·E?' (OpenAI, 2023) <<https://help.openai.com/en/articles/6425277-can-i-sell-images-i-create-with-dall-e>> accessed 4 June 2023

between the US and EU regarding AI copyright laws, as governments now not only need to investigate the tools (AI models) but also the output may now become economically and legally relevant as well.

Since recommendations will be presented in the subsequent chapter, it would be of paramount importance to also have an in-depth discussion on the fair use model from the US. As noted above, it is a framework which is much more flexible in allowing for dealing with rapid technological changes, such as the generative AI models discussed throughout this thesis. However it is important to note that there also are some limitations to the fair use model's-imposed flexibility. As the flexibility provided may be interpreted as failure to provide clearer rules about what is permitted.<sup>172</sup>As well as that it is bound to a court's decisions, instead of it being codified in law.<sup>173</sup>

## 4.2 Analysis of the Changing Scope of Copyright Protection

### 4.2.1 Clarity of Copyrightability & Ownership

Now we will analyze how the use of copyrighted material in AI models impacts the scope of copyright protection. To analyze this, we will summarize the aforementioned conclusions on the copyrightability of works created by AI models with no human intervention. From what was noted above, for something that is exclusively made by an AI model, there is likely no copyright protection within the European Union, as it does not fulfill the four-step test. However, there is currently no definitive statement from an EU copyright-related office, such as the EUIPO, on this matter.

When looking at the US, here the US Copyright Office clearly stated that such images (e.g. ones created through Midjourney<sup>174</sup>) have not been granted copyright protection.<sup>175</sup> It is also important to note that the same Copyright Office is currently examining the scope of copyright in works generated using AI tools as well as the usage of copyrighted materials in training AI models in the first half of 2023.<sup>176</sup>

### 4.2.2 Can AI-Generated Content Constitute an Infringement?

As previously discussed, the EU takes a stance that there may be infringement possibilities with both the content that goes into the creation of the module (hence the opt-out provision), as well as the content that is generated by the model (hence the future copyright safeguards). Although none of this has yet been tested by law – or regarding the safeguards from the previously discussed draft AI Act,

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<sup>172</sup> Liu, Joseph P. "Fair use, notice failure, and the limits of copyright as property." BUL Rev. 96 (2016): 833.

<sup>173</sup> Snow, Ned. "Who Decides Fair Use-Judge or Jury." Wash. L. Rev. 94 (2019): 275.

<sup>174</sup> Blake Brittain, 'AI-created images lose U.S. copyrights in test for new technology' (Reuters, 23 February 2023) <<https://www.reuters.com/legal/ai-created-images-lose-us-copyrights-test-new-technology-2023-02-22/>> accessed 4 June 2023

<sup>175</sup> Ibid

<sup>176</sup> US Copyright Office, 'Copyright and Artificial Intelligence' (US Copyright Office) <<https://copyright.gov/ai/>> accessed 4 June 2023



this has not even been passed into law – it does provide at least some sense of how the field may be regulated in the European Union in the future.

On the American side, the US Copyright Office seems to currently take a more hands-off approach. Some scholars argue similarly to OpenAI<sup>177</sup> that what they do is transformative and thereby falls under fair use. Here, they cite the famous Google v. Authors Guild case, where Google was allowed to scrape copyrighted books to then display snippets of these on their website<sup>178,179</sup> as it was deemed to be fair use doing so, thereby making the point that the usage of copyrighted materials to train AI models would fall in a similar category.

In a recent consideration written to the American Congress by the Congressional Research Service regarding these issues, it was noted that: “Congress may wish to adopt a wait-and-see approach. As the courts gain experience handling cases involving generative AI, they may be able to provide greater guidance and predictability in this area through judicial opinions. Based on the outcomes of early cases in this field, such as those summarized above, Congress may reassess whether legislative action is needed.”<sup>180</sup>

Such a ‘laissez-fair’ stance on AI regulation presents benefits in its adaptability to fast-evolving AI technologies where it may be un- or even counterproductive for legislators to attempt to impose regulations due to the time it requires to implement. Especially as courts may be more adaptable to evolving through case law and legal precedent. However, such an approach may mean that harm needs to occur before safeguards can be put in place. This in turn may warrant more of a proactive effort to understand and possibly legislate on the challenge posted by generative AI models. This is further reflected in the recommendations in the following chapter.

#### 4.2.3 Jurisdictional Differences

As previously mentioned, the most significant challenges arise due to the US’ flexible fair use doctrine, allowing for the usage of copyrighted materials in certain situations without requiring explicit permission from the copyright holder (i.e. no opt-out clause necessary), whereas the EU takes a more strict and hands-on approach. Although the EU does have some exceptions to being able to use

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<sup>177</sup> United States Patent and Trademark Office, ‘OpenAI RFC-84-FR-58141’ (Department of Commerce, Comment of OpenAI, LP, Docket No. PTO-C-2019-0038) <[https://www.uspto.gov/sites/default/files/documents/OpenAI\\_RFC-84-FR-58141.pdf#page=5](https://www.uspto.gov/sites/default/files/documents/OpenAI_RFC-84-FR-58141.pdf#page=5)> accessed 4 June 2023

<sup>178</sup> Christopher T. Zirpoli, ‘Generative Artificial Intelligence and Copyright Law’ (Congressional Research Service, updated 11 May 2023) <<https://crsreports.congress.gov/product/pdf/LSB/LSB10922>> accessed 4 June 2023

<sup>179</sup> *The Authors Guild and others v Google Inc (2015) Docket No. 13-4829-cv, USCA, 2nd Circuit*

<sup>180</sup> Christopher T. Zirpoli, ‘Generative Artificial Intelligence and Copyright Law’

copyrighted material in a fair use-like manner, there is still a stark contrast to the US' implementation of this policy.

The fair use doctrine in the US code is broad and specifically protects: “the fair use of a copyrighted work, including such use by reproduction in copies or phonorecords or by any other means specified by that section, for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research, is not an infringement of copyright.”<sup>181</sup> It further states that to determine whether something qualifies, it considers the purpose and character of the use (including if it is of commercial nature), the nature of the copyrighted work, the amount and substantiality of the portion used in relation to the copyrighted work as a whole and the effect of the use upon the potential market for or value of the copyrighted work.<sup>182</sup> This allows courts themselves to make a judgement on whether or not something would be transformative, including basing such a decision on the harm caused to the right holder(s) on a case-by-case basis. Instead of having to rely on highly codified exemptions, and the vaguely defined three-step test as is the case in the European Union.

These jurisdictional differences can pose substantial challenges when dealing with AI-generated content. For instance, if AI models and the copyrighted content used therein are deemed to fall under US fair use principles, but not under future EU TDM (or similar) exceptions, then this model (and its generated content) possibly infringes upon EU legislation. This could become even more problematic if AI models (which some do as we discussed earlier) allow their end-users to sell and/or otherwise commercially exploit the AI-generated content, which may result in cross-jurisdictional legal disputes for the end-users.

#### 4.3 Impact on the Scope of Copyright Protection

It is evident that there is considerable ambiguity surrounding the regulation (or lack thereof) of the usage of copyrighted material to train AI models in both the EU and US. However, the developments highlighted previously are likely to have a profound impact on the scope of copyright protection given the important legal and economic implications. These highlighted ambiguities reflect the complexity of the issues at hand, as well as the importance of properly needing to balance the potential economic benefits with the necessity of maintaining a robust copyright protection framework.

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<sup>181</sup> 17 U.S. Code § 107 - *Limitations on exclusive rights: Fair use*

<sup>182</sup> *Ibid*

#### 4.3.1 Problems Faced and a Need for Reforms in the EU

Professor Senftleben highlights that the present regulation of copyright limitations in the EU offers neither legal certainty nor sufficient flexibility in how it may be dealt with.<sup>183</sup> This, as he notes, is due to the combination of the European copyright tradition of codifying exceptions as in Article 5 of the InfoSec Directive, as well as to the three-step test which consists out of several open-ended criteria, recalling the Anglo-American copyright tradition,<sup>184</sup> making an improper fit.

Therefore, Senftleben argues that there is a conflict in the EU system. While precisely defined exceptions can increase legal certainty, they may be consistently challenged based on the EU's three-step test. And national copyright exceptions – despite their specificity – may be further constrained by the open-ended test as it may be found incompatible. Unlike the more flexible fair use provisions, the EU three-step test does not permit courts to introduce new forms of allowed unauthorized use (that subsequently becomes 'authorized'). Thereby, Senftleben argues, the current EU system fails to achieve the benefits of either the Anglo-American or continental European copyright approaches, reducing legal certainty due to the restrictive application of the three-step test on precisely defined national exceptions.<sup>185</sup> When relating this to AI-generated content more specifically, the author believes that Senftleben presents a compelling case on the inadequacy of the current EU copyright system when addressing AI-generated content. Especially when combined with the non-specified implementations of the safeguards provided in the draft AI Act, the issues become particularly prominent.

In addition to this, Senftleben notes that law making in the EU tends to be much slower than in individual countries becoming what he calls a *worst-case scenario* for the EU. Thus, he notes that responses to unexpected technological advancements and emerging needs will not only be slow, but also be highly codified by exceptions. We can therefore deduce that the Anglo-American framework would be a better framework to incentivize the creation- and further development of new technologies, as legal certainty can be provided by a court on a relatively short notice when compared to the EU framework.

Senftleben therefore argues that these factors highlighted above would require a more flexible system as the slow and precisely defined system necessitates repeated legislative intervention. He argues that it would be irresponsible not to do so, given the rapid pace of emerging technologies. Although the author of this piece is not exactly in full agreement with this statement, the need for swift legal clarity,

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<sup>183</sup> Senftleben, *'Comparative approaches to fair use'*

<sup>184</sup> Ibid

<sup>185</sup> Ibid

which could be provided by a more flexible system, is agreed upon. Such clarity could be facilitated by a more agile system, potentially benefiting both copyright holders and AI model creators. Providing legal safeguards while also mitigating the burden of legal expenses all within a reasonable timeframe, thus presenting a possibly balanced solution which will be further explored in the next chapter

#### 4.3.2 Concluding on the Impact

Thus, this brings us to the potential for a substantial expansion in the scope of copyright protection. As previously noted, this could take several forms such as allowing the scraping of materials in a more fair use style, or not allowing such usage without permission. Additionally, new arbitrage opportunities may arise due to these new changes in scope. This makes it important to ensure that these changes are thought through well by the host country, as well as possibly preferring an option where these changes are disposed of in a global manner. This is due to the Anglo-American copyright system, which may rely on fair use principles, and is seemingly more flexible than its EU counterpart. This fact in turn is giving arbitrage opportunities for AI developers to choose a more flexible copyright regime, possibly negatively affecting the choices made by the European Union to create a fair and well-balanced playing field for both right holders and AI developers.

#### 4.4 Interim Conclusion on the Analysis & US Benchmark

To conclude, the analysis of chapter four highlights the differences between US and EU copyright laws and their implications for AI developers, and intellectual property rights holders. The US benchmark, specifically relating to the fair use principle, provides more flexibility in using copyrighted materials for what are known as transformative purposes. In opposite to the EU, which relies on codified exceptions and a difficult to interpret three-step test. This flexibility the US has allows courts to swiftly adapt to novel situations such as the rapidly changing AI landscape without the need for (frequent) legislative updates. These jurisdictional differences may pose challenges for right holders who may want to protect their rights on a worldwide level, potentially leading to legal disputes and complicating the regulation of AI copyright laws.

Moreover, the impact on the economy is also a crucial consideration for deciding upon a strategy to address these AI developments. A balance must be sought between economic growth and increased (labor) productivity and content creation. However, at the time of writing, both the legal systems in the EU and US seem to lack clarity on many of the topics discussed throughout the thesis. Yet, due to the US' increased flexibility, it may lead to legal certainty within a faster time frame. To address the concerns arising from AI technologies and their usage of copyrighted content, it is essential to find a resolution to the jurisdictional problems and work toward global collaboration in copyright protection.

With this comprehensive understanding and analysis, the following chapter will give the suggested solutions. An effort will be made to clearly express potential solutions to these problems in this section. This section will explore the feasibility and enforceability of each recommended solution, and concludes with a ranking.

## Chapter 5 – Recommendations

### 5.1 Mitigating Risks of Copyright Infringement and AI

Now that the obstacles faced by the current EU legal framework and the effects of current copyright rules on AI models and the works they create have been investigated, it is relevant to evaluate potential proposals to solve these concerns within the context of this thesis. The main aim is to address the ability of right holders to identify when their work is being utilized by AI models, prove such usage, and enforce their intellectual property rights. More broadly, the thesis also seeks to address the application of copyright laws in a manner that does not impede economic progress, while maintaining the protection of copyright owners and guaranteeing them fair compensation for their work.

Initially, two regulatory enforcement solutions seem to emerge for this problem. Either picking a regulatory approach which is more stringent on AI developers and hence harm further economic and technological progress, while at the same time maximizing the economic utility derived by the copyright owners from their intellectual property. Alternatively, allowing AI developers to utilize copyrighted material for various purposes could also be a possible solution. The latter may increase the adoption and advancements of the technology, but could lead to inadequate compensation for rights holders. To solve these issues, Prof. Dr. Wolf-Georg Ringe recommends what he calls a regulatory sandbox for AI.<sup>186</sup> He suggests that a regulatory sandbox provides a controlled environment where innovators and businesses can test and develop new AI technologies with fewer regulatory constraints.

This approach also seems to be the one taken by the European Union as of now. The EU initiated its first regulatory sandbox for AI which started in Spain in 2022<sup>187</sup>, which aims to bring competent authorities close to the companies that develop AI models to define best practices. Aiming to guide the implementation of the future EU AI Act.<sup>188</sup> Research conducted by Prof. Wolf-Georg Ringe shows that the main benefits provided by such a regulatory sandbox are that it promotes innovation by

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<sup>186</sup> Wolf-Georg Ringe, *'Why We Need a Regulatory Sandbox For AI'*, 12 May 2023, <<https://blogs.law.ox.ac.uk/oblb/blog-post/2023/05/why-we-need-regulatory-sandbox-ai>> accessed 19 June 2023

<sup>187</sup> Abhishek Raj, Anshul Pachouri, *'Regulating AI through sandbox: Roadmap for developing and under-developed countries'*, United Nations Report May 2023, accessed 19 June 2023

<sup>188</sup> European Commission, *'First regulatory sandbox on Artificial Intelligence presented'*, 27 June 2022, <<https://digital-strategy.ec.europa.eu/en/news/first-regulatory-sandbox-artificial-intelligence-presented>> accessed 21 June 2023

allowing new technologies to develop in a controlled environment reducing the time to market for such new innovations.<sup>189</sup>

This is important especially because, as noted in the previous chapter, the draft AI Act is slow to adapt. Additionally, it can provide safeguards for copyright holders, such as by requiring enhanced transparency by obliging AI developers to report their usage of copyrighted material, or by pilot testing potential regulatory changes to create a more level playing field. Finally, it is noted that such a regulatory sandbox further fosters collaboration between the stakeholders involved.<sup>190</sup> This latter point is especially important as the collaboration can lead to more effective and efficient regulations that balance the needs of the innovators, and other stakeholders such as the copyright holders.<sup>191</sup> Therefore, the solutions proposed below will be examined from a perspective that the regulatory sandbox tool adopts – namely regulatory flexibility.

In this regard, the following will be examined: the opportunities and abilities that arise through new licensing schemes, digital rights management (DRM) and the EU proposed opting-out clauses. The reason for choosing these recommendations is that they are the most common manners of dealing with copyrighted materials in a digital environment. After which, a look at whether or not the EU's current copyright framework would benefit from a more fair-use-like environment will also be discussed, as well as providing guidance for future research, which includes a note on possible changes to the international copyright framework.

## 5.2 Current Solutions

First, we must examine how current market practices have attempted to address these challenges, identifying areas for further improvement and practices that are already effectively operating in the real world. One recent example of this would be Stability.ai – the developer of Stable Diffusion – which announced that they will be implementing an option to allow right holders to opt-out.<sup>192</sup> Another tool designed to assist creators and copyright holders to keep track of where their copyrighted content is used is 'HaveIBeenTrained'.<sup>193</sup> This tool allows artists to search for their works in the data set used to

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<sup>189</sup> Wolf-Georg Ringe, 'Why We Need a Regulatory Sandbox For AI' 2023

<sup>190</sup> Fahy, Lauren A. "Fostering regulator–innovator collaboration at the frontline: A case study of the UK's regulatory sandbox for fintech." *Law & Policy* 44.2 (2022): 162-184.

<sup>191</sup> Wolf-Georg Ringe, 'Why We Need a Regulatory Sandbox For AI' 2023

<sup>192</sup> Melissa Heikkilä, 'Artists can now opt out of the next version of Stable Diffusion' (MIT Technology Review, 16 December 2022) <<https://www.technologyreview.com/2022/12/16/1065247/artists-can-now-opt-out-of-the-next-version-of-stable-diffusion/>> accessed 4 June 2023

<sup>193</sup> 'Have I Been Trained?' <https://haveibeentrained.com> accessed 4 June 2023

train Stable Diffusion by uploading it onto their digital website. After which this tool scans the training data, and provides the artist with the ability to have their content excluded if it were to be found.<sup>194</sup>

In academic terms, this practice would be viewed as data pooling. This refers to the gathering and sharing of data from different sources, often used to create a larger, more comprehensive data set. In this context, a collective data pooling solution for copyrighted material used in AI models could be beneficial by including additional data governance procedures.<sup>195</sup> One issue that arises here is that even if all AI models would publish a set of the works used in their models, that this would mean that copyright owners should spend their time checking each and every generative GPT AI-model before they are able to see whether or not their material was used.

One potential solution here would be to establish a centralized data pool accessible to copyright owners which gathers this data from all AI-model providers. However, if such a tool is not freely available (e.g. provided by a non-profit organization or governmental organization), then this would likely bring extra costs for the copyright owners, which it in turn has to deal with. A legal framework which could accommodate such a tool should consider various legal strategies. Governments could mandate and fund the tool's development (even on an EU-level), or form public-private partnerships to share resources.<sup>196</sup>

An alternative framework that could enable this solution is by requiring AI developers to report their use of copyrighted works to a central registry. Here a non-profit organization could then be encouraged through grants or other (tax) incentives to develop and maintain such a tool. A problem that arises here is that there may be fragmentation when the tool that is created is not seen as generally good, this could force copyright holders to need to purchase access to an alternative tool if this were to operate in a substantially more effective manner. Choosing the optimal outcome here could be done through the earlier proposed regulatory sandbox, where for instance, differing Member States may at first try out different proposed solutions, before coming together and choosing what fits best.

### 5.3 Licensing

In response to the issues highlighted above, some copyright holders have begun to offer specific AI-tailored licenses for the usage of their copyrighted materials. For instance, Getty Images in their press release about suing Stability AI note that "Getty Images provided licenses to leading technology

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<sup>194</sup> Melissa Heikkilä, 'Artists can now opt out of the next version of Stable Diffusion' (n 141)

<sup>195</sup> Janssen, Marijn, et al. "Data governance: Organizing data for trustworthy Artificial Intelligence." Government Information Quarterly 37.3 (2020): 101493.

<sup>196</sup> Geddes, Michael. *Making public private partnerships work: Building relationships and understanding cultures*. Gower Publishing, Ltd., 2005.



innovators for purposes related to training artificial intelligence systems in a manner that respects personal and intellectual property rights".<sup>197</sup> These types of licensing are known as 'limited licenses'<sup>198</sup> as they do not grant all the rights which the owner of the intellectual property possesses to the licensee, and instead only provides some of those rights.

This approach helps both to support AI development, as well as to ensure that copyright holders are fairly compensated for their material. AI developers who abide by such a license are shielded from legal uncertainty and corresponding legal issues. Such limited licensing schemes could thereby provide a potential solution to the copyright issues, which arise from AI models' usage of copyrighted material. However two additional issues arise, one: the implementation of such schemes requires cooperation among stakeholders, including the rights holders, AI developers, users, and possibly additional authorities (e.g. the platform/intermediary), all while avoiding the need for legal action and/or legal uncertainty. Another issue would be the cost of licensing.

The latter argument regards the fact that licensing material over simply freely scraping it from websites is far more costly. This in turn may lead to a situation where smaller AI developers may not be able to participate in the creation of new and innovative tools, and hence, hurting the economy in return. Therefore, only implementing licensing options to deal with the problems caused by copyright infringement against copyright holders may not be sufficient. Although it certainly would seem like a viable option for those who can afford to go this route.

From a legal enforcement perspective, limited licensing schemes offer a structured and well-known avenue for rights management. It provides a clear set of permissions for the use of copyrighted material to develop AI models, which in turn can significantly reduce the likelihood of disputes and/or litigation over such IP rights as they are clearly defined in the licensing agreement. In a regulatory sandbox system, licensing agreements can be further tested, iterated and optimized in an environment that allows for flexibility and quickly adapts to evolving needs from all stakeholders involved.<sup>199</sup> Thereby providing copyright holders with a familiar system which may be able to appropriately protect their rights and ensuring compensation for their works. However, creating such licensing schemes may in turn bring about additional costs that copyright holders will need to account for.

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<sup>197</sup> Getty Images, '*Getty Images Statement*' (17 January 2023) <<https://newsroom.gettyimages.com/en/getty-images/getty-images-statement>> accessed 4 June 2023

<sup>198</sup> "*limited license*." Oxford Reference. . . Date of access 19 Jun. 2023, <<https://www.oxfordreference.com/view/10.1093/oi/authority.20110803100106217>>

<sup>199</sup> European Parliament, Briefing, '*Artificial intelligence act and regulatory sandboxes*' <[https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/733544/EPRS\\_BRI%282022%29733544\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/733544/EPRS_BRI%282022%29733544_EN.pdf)> accessed 19 June 2023

This experimentation and learning can help develop a more effective and inclusive licensing system, while at the same time having minimal difficulties from an enforcement perspective. Therefore, the combination of licensing with a regulatory sandbox approach can address the challenges which arise between copyright owners and the creators of AI models. An example being where one jurisdiction may centrally pool material in a dataset to actively oversee licensing, providing a special license which both provides a monetary incentive for right holders while also ensuring that there is no overly large burden on AI developers. Whereas another jurisdiction may take more of a laissez-fair approach, for instance by leaving this process to the free market in its entirety and seeing which licensing schemes arise from this. However, due to the increased cost of such licenses, special attention should be given to ensure that this would not eliminate small innovative players from the market. But instead address the challenges faced by the stakeholder in a balanced and dynamic manner.<sup>200</sup>

#### 5.4 Digital Rights Management & Opt-Out Mechanisms

Another approach to ensure that copyright owners' rights are protected would be through the options of digital rights management (DRM) and opt-out mechanisms, which allow copyright owners to control the usage of their works in AI models *ex ante*. Therefore these two approaches will be discussed in depth in the following section.

##### 5.4.1 Role of Opting-Out Mechanisms

The EU suggests one method to protect the rights of copyright holders is by implementing a machine-readable zone (MRZ). This could show whether or not an image (or other form of content) may be used for the training of AI models, etc. in a manner that is readable to machines. This is already something that is done in a similar manner on the internet through what is known as the Robots Exclusion Protocol (also known as the robots.txt file).<sup>201</sup> The reader can check this him/herself by opening a popular website and adding `/robots.txt` to the end of the domain. This will then show a list of webpages that the website does (or does not) want to be looked at by robots/bots. For instance, if one does not want to have any webpages indexed by search engines in their `/admin` folder, they can disallow access to these in this manner.<sup>202</sup>

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<sup>200</sup> Ibid

<sup>201</sup> Google Search Central Blog, 'Formalizing the Robots Exclusion Protocol Specification' (1 July 2019) <<https://developers.google.com/search/blog/2019/07/rep-id>> accessed 4 June 2023

<sup>202</sup> 'About /robots.txt' <<http://www.robotstxt.org/robotstxt.html>>

The fact that such technology already exists is important to note, as the EU does not provide a clear way of how they would like to see this opting-out implemented. However, it is worth noting that the Robots Exclusion Protocol may not be suitable for addressing the needs of copyright owners, as they would either need to disallow access to certain websites by all bots, or specify all AI scraping bots specifically in the robots.txt file.<sup>203</sup>

Hence, another MRZ to tell bots not to use their content may be more appropriate to implement.

An alternative approach is presented in figures 3 and 4. Figure 3 shows a simple piece of HTML (web markup) code which includes an image as one normally would (without MRZ).

Whereas figure 4 has a `<noscrrape></noscrrape>` tag around the image. In such a manner, a website would be able to tell scraping bots not to scrape this image. Of course, this could also be turned into a class, such as `<noscrrape class="AI"></noscrrape>` to only exclude the scraping for AI tools, whilst still e.g. allowing search engines to scrape the image to display in their image search.

```
<!DOCTYPE html>
<html>
<head>
  <title>My Website</title>
</head>
<body>
  <h1>Welcome to My Website</h1>
  
</body>
</html>
```

Figure 3 - Simple HTML template which includes an image (image\_1.png) without MRZ telling not to scrape the image

```
<!DOCTYPE html>
<html>
<head>
  <title>My Website</title>
</head>
<body>
  <h1>Welcome to My Website</h1>
  <noscrrape>
    
  </noscrrape>
</body>
</html>
```

Figure 4 - Simple HTML template which includes an image (image\_1.png) with MRZ telling not to scrape the image

However, as long as there is no clear way in which this MRZ should be designed, this should either quickly be disposed through the EU itself, or by creating a similar standard to the Robots Exclusion Protocol by the industry itself. Here, the regulatory sandbox environment can serve as a platform to develop and refine these mechanisms first by the industry, and to study their impact on copyright

<sup>203</sup> Ibid

owners and AI developers before implementing a standardized approach through EU (or worldwide) legislation.

For copyright holders, such an option can be both easy to implement and low-cost as no additional licenses need to be purchased to use an open protocol as recommended above. The same is the case for AI-model developers and other stakeholders involved. Thereby making this recommendation attractive for copyright holders and other involved stakeholders. However, there are also some negatives from an enforcement and copyright holders perspective which will be discussed now.

From an enforcement perspective, while relatively easy to implement and flexible, opt-out mechanisms can pose challenges. One challenge that arises is the voluntary nature of such opt-out systems. It may still be open to disputes, as AI developers may (un)intentionally choose to ignore opt-out requests for instance due to a misinterpretation of the law or technical oversight. This could henceforth still lead to potential legal disputes between AI developers and copyright holders. Therefore, enforcement strategies for opt-out mechanisms may need to rely on a strong legal framework which includes penalties for non-compliance.<sup>204</sup> Its chance of being successfully implemented ranks high, as the digital environment is already used to having such opt-out rules in place (Robots Exclusion Protocol, EU Cookies banners, etc.), making it a good option to be included in the EU regulatory sandboxing model.

#### 5.4.2 Role of Technological Protection Measures (DRM)

Digital Rights Management also known as DRM, is a well-known approach in the creative industry,<sup>205</sup> commonly used in video games and movies ensure that their copyrighted content cannot be illegally transmitted using specialty software.<sup>206</sup> By incorporating such a DRM system into their works, right holders may be theoretically able to manage access to their works, and potentially control how AI models can access and use such copyrighted material. However, the usage of DRM systems must be balanced against the need to ensure that AI models can access such material for legitimate purposes – for instance as for the legal exceptions highlighted earlier.

From an enforcement perspective, DRM in this case may however be more difficult to accomplish than providing a universal manner of opting-out as to having digital content not included in the creation of AI models. This is so because DRM would need to be included in the content itself e.g. by the camera manufacturer to allow such DRM to be added at the time of taking the image. However, this may in

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<sup>204</sup> Gunningham, Neil. "Enforcement and compliance strategies." (2010).

<sup>205</sup>Fortinet, 'What Is Digital Rights Management (DRM)?' (Fortinet) <<https://www.fortinet.com/resources/cyberglossary/digital-rights-management-drm>> accessed 4 June 2023

<sup>206</sup> Ibid

turn lead to problems of how easily such material may be shared (i.e. will it need special software to view or transmit the images?), and to have all manufacturers work by the same standards.

It is true that in a regulatory sandbox, DRM systems for AI models can be tested and refined.<sup>207</sup> These systems could theoretically be designed to respect exceptions for legitimate purposes, striking a balance between copyright protection and fair use. However, the challenge with DRM is the need for uniform standards across different content and equipment manufacturers. This factor complicates its implementation, and makes it one of the least likely solutions to be successfully implemented.

From a right holders' perspective, although some may already be familiar with such practices, it would require them to bear the additional cost of development and implementation of such a system. Consequently, this option may appear less attractive due to the potential financial implications for the copyright holders that this entails.

## 5.5 Fair Use to Europe

Another possible option that arises is for the EU to take a more fair-use-like approach to copyright usage in AI models as discussed in-depth in the previous chapter. Although the development of AI models may benefit from a more hands-off approach with wider exceptions, as well as that all stakeholders may benefit from the additional flexibility and speed provided by implementing a fair use mechanism. This may not be as easy as it seems, given that it would constitute a tremendous change in the EU's legal framework regarding copyright, as well as how its Member States currently deal with it.

However, even when considering the challenges of implementation, it is clear from research by Prof. Senftleben and others that the additional flexibility provided by such a fair use system will be far reaching. As Prof. Senftleben argues, the current legal framework employed regarding copyright in the EU neither provides enough flexibility (highly codified rules, e.g. InfoSec Directive) nor sufficient legal certainty (differing interpretations of the three-step rule), the advantages from the US fair use doctrine may function as a foundation point for a new copyright system throughout the European Union<sup>208</sup> in what he calls the perfect match of civil law judges and open-ended fair use provisions.

As noted by Prof. Senftleben, even without directly implementing the fair use doctrine verbatim, the three-step test's flexibility can be leveraged and redefined to be used as a balancing tool to expand

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<sup>207</sup> Truby, Jon, et al. "A sandbox approach to regulating high-risk artificial intelligence applications." *European Journal of Risk Regulation* 13.2 (2022): 270-294.

<sup>208</sup> Senftleben, Martin. "Comparative approaches to fair use: an important impulse for reforms in EU copyright law." *Methods and perspectives in intellectual property*. Edward Elgar Publishing, 2013. 30-68.

existing limitations and introduce new privileges.<sup>209</sup> As a result, EU judges would not use the three-step test as an additional control mechanism but instead it could serve as an opening clause supplementing the EU catalog of exceptions, providing it with the necessary flexibility to take advantage of the rapid development of AI technologies.<sup>210</sup> However, considering the unresolved issues in the US related to copyright infringement by AI, and its consequential legal and economic impact, the proposed solution may be less viable. This potential impracticality becomes more apparent when the solution is juxtaposed with the significant changes required in the European legal framework, as suggested in this thesis. Hence, it may make more sense to provide more legal clarity. An example being to publish a newly updated AI Act which tackles the uncertainty by the opt-out provisions before the year 2025. For example, by providing a technical protocol as mentioned earlier. This way, copyright holders at least will be able to protect their content to some extent if they do not want their content to be used for the training of AI models.

From an enforcement and legal framework perspective, a fair use-inspired approach (e.g. leveraging the three-step test) and a revised AI Act offer potential solutions to the challenges presented throughout this thesis. For copyright holders, although such a fair use system may be able to provide them with legal certainty earlier on, the fair use principles may mean that their works could be used on a wider scale than under a non-fair use system. Thereby lowering the anticipated earnings of right holders, while benefiting the AI model developers. Therefore, from a copyright holders' perspective, implementing such a system in the European Union may likely be mildly attractive.

Implementing a sandbox approach for public actors is challenging here because sandboxes are inherently not designed to accommodate public actors in this manner.. The optimal solution may involve a combination of approaches, balancing legal clarity and flexibility, stakeholder protection, and innovation. Therefore, the approach of a fair use-like model in the EU regarding the usage of copyrighted materials in AI-generated content would likely be the most challenging option to implement, considering its divergence from the existing legal status quo within the EU.

## 5.6 A Note for Future Research

For future researchers I would suggest not only keeping an eye on the ever-changing rules, regulations and papers regarding the topic of copyrighted material which is being used to train AI models, but also to explore other areas of interest. These include other possible ways of protecting right holders besides the opt-out clause and technologies to warn them when their works are being used. As well

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<sup>209</sup> Senftleben, Martin. *"The perfect match: civil law judges and open-ended fair use provisions."* Am. U. Int'l L. Rev. 33 (2017): 231.

<sup>210</sup> Ibid

as to examine how the developers of such AI tools may be protected against overly litigious practices, which in turn may hinder innovation in this space by imposing higher costs on developers.

Another major point of interest would be how such arbitrage opportunities uncovered in this thesis could be minimized. While the suggestion could be made to implement such rules and regulations on a global scale, alternative approaches may have eluded comprehensive examination within the scope of this research. As well as exploring the formulation of global rules to ensure that the rights of copyright holders and AI developers are not infringed upon in an unbalanced manner.

Implementing an international AI copyright framework may therefore be crucial to minimize arbitrage opportunities for AI developers and to enforce copyright holders' rights across borders. However, achieving consensus among countries with varying interests and legal systems is challenging. Harmonizing the usage of copyrighted materials in AI models can benefit copyright holders by reducing arbitrage and promoting innovation within legal boundaries. However, the implementation of such a framework requires substantial time and effort. This point of an internationally aligned framework therefore may necessitate further research in the future.

## 5.7 Interim Conclusion on the Recommendations

In conclusion, resolving the issues of AI copyright infringement necessitates a multifaceted strategy that incorporates international, legal, and technical collaboration. Based on the issues highlighted, the following recommendations are suggested to mitigate the issues highlighted above:

1. Implement a clear opt-out mechanism
2. Explore AI-specific licensing schemes
3. Possibly investigate Digital Rights Management tools (DRM)
4. Implementing a more flexible fair use-like copyright model

Addressing the challenges associated with the use of copyrighted material in AI models, and implementing (some of) these recommendations, it would be possible to strike a balance between the rights of the copyright owners and the rights of the AI developers in a well-balanced manner. This will foster innovation, provide legal clarity for both sides and at the same time ensure that copyright owners will continue to be fairly compensated for their work.

Regarding the recommendations presented in this thesis, it is noted that there are differences regarding the enforcement of the recommendations, as well as how they fit in the chosen legal framework of the regulatory sandbox. The most challenging to implement from an enforcement and legal framework perspective would be implementing a fair use-like system in the EU as it may impose difficulties due to the remarkable changes in current legislation it would require. Although the latter

definitely could help in regard to legal certainty and flexibility by for instance adjusting the three-step test, it still ranks as one of the least likely options to be implemented to tackle the issues highlighted in this thesis. Regarding the usage of Digital Rights Management solutions, it was also concluded this is less likely to succeed given the need for international cooperation between lawmakers and manufacturers, as well as the additional costs and difficulties it imposes on right holders and end-users.

On the other hand, the opt-out mechanism and exploration of AI-specific licensing schemes may be more likely to succeed from an enforcement and legal framework perspective. Not only may they be well accommodated by a regulatory sandbox framework, they also are closest to already existing solutions such as the discussed robots exclusion protocol & limited licensing licenses. Hence, these latter two would likely be the most successful were they to be implemented to tackle the problems of finding a balance where AI developers are allowed to keep innovating, while at the same time appropriately rewarding the owners of intellectual property.

For future research, it is recommended to stay informed about the evolving rules, regulations, and literature pertaining to the use of copyrighted materials in training AI models. This includes monitoring the development of the draft AI Act in the EU, as well if other legislation will become relevant, such as the TDM guidelines highlighted throughout the thesis. Furthermore, it will be of interest to observe the efforts made to minimize international arbitrage opportunities, considering alternative approaches to implementing global rules and ensuring that the rights of intellectual property owners and AI developers are respected in a manner that aligns with both economic and legal considerations.



## Chapter 6 – Conclusion

As asserted in the thesis, the use of copyrighted materials by AI models has become a significant issue, presenting complex challenges on both legal and economic fronts. Therefore, this thesis rigorously explored this phenomenon by asking the research question of:

“What are the legal and economic implications of using copyrighted material in AI models, and how should this practice affect the ownership and protection of the resulting work?”

To provide an extensive answer to this question, the legal and economic rationales for copyright protection were highlighted in the second chapter, the literature review. In short, it can be concluded that the legal rationale comes from protecting the works of a creator (or owner), whereas the economic rationale is related to the inherent value of such works and the industry as a whole, as well as rewarding the creating of such works while at the same time limiting the economic monopoly position that is awarded to the creator/owner to a limited time period. After which the impact of such usage of copyrighted material on the rights of creators, owners and users of copyrighted material was examined. For copyright holders, the main impact revolves around receiving appropriate monetary incentives for their works and maintaining a well-balanced level of protection. As well as noting the practical difficulties for copyright holders to trigger protection. Namely the identification of infringement, having to prove said infringement and being able to enforce their rights. For users and creators of AI models, the primary challenge is avoiding being forced out of the market.

The third chapter focused on the legal status quo, introducing the international copyright framework via the Berne Convention, and showing how such laws can be passed down to the EU’s Member States. Given the lack of clear international laws on this subject, the study further scrutinized EU-level regulations. Focusing on the three-step test which relates to copyright exemptions, and the four-step test which guides in concluding if something is to receive copyright protection. From the latter test, it was concluded that an output merely made by a prompt would not receive copyright protection as it would not fulfill the requirements for human intellectual effort, nor intent. When investigating the EU-level further, the TDM (text and data mining) and draft AI Act were introduced. The TDM exception was noted to provide what is known as an ‘opt-out provision’, this is where a rights holder is able to ‘opt-out’ of having their works be used by someone who mines/scrapes their data. However, it is unclear how this would specifically relate to the field of AI-generated content, as no specific guidance is given. The draft AI Act provided a similar exception as the ‘opt-out’ provision from the TDM laws, as well as additional safeguards. However, it did not provide necessary implementation guidance, nor further explained many of the safeguards and how the industry should implement those. Thereby not providing a sufficient level of protection for any of the involved stakeholders. This, combined with the

draft AI Act not being expected to be passed into EU law by 2025, meant that there is still a concern for more legal and regulatory clarity on this topic at the time of writing.

To further help establish an answer to the legal uncertainties, as well as to answer the research question, chapter four introduced an analysis of the Anglo-American fair use principles relating to the usage of copyrighted materials by AI models. Here, the more flexible fair use principles were benchmarked against the highly codified exemptions as they are given in Europe. These flexible fair use principles allow to provide legal clarity on an earlier basis, which in turn could be beneficial for both investors and creators of AI models, as well as copyright holders. However, the more 'laissez-faire' stance taken by the US may also mean that harm needs to occur before safeguards for copyright holders can be put in place. Although this in turn could also present benefits to such a fast-evolving industry, as attempting to impose regulations may be un- / counterproductive. Therefore, Dr. Senftleben argues for a fair-use-like system to address these issues. The author agrees on the need for swift legal clarity, which could be provided by a more flexible system, yet note that such a system should be well balanced with all the stakeholders involved as to not negatively affect the rights of copyright holders.

The fifth and final chapter before the conclusion noted the recommendations that could be made to mitigate the risks of copyright infringement by AI models. Starting with introducing the regulatory flexibility framework that includes the usage of a regulatory sandbox approach. Which is a controlled environment where innovators and businesses can test and develop new AI technologies with fewer regulatory constraints imposed on them. The reason for doing so is that this approach is also taken by the EU, who initiated its regulatory sandbox on AI in Spain in 2022 which aims to guide the implementation of the future AI Act. The chosen recommendations, already common in dealing with digital copyrighted content, include the use of DRM techniques, opt-out strategies, licensing, and a shift towards a more fair use-inspired model. After these recommendations were made and discussed in-depth, future researchers were addressed to further explore this topic, especially when relating to the non-copyright holders (i.e. users / creators of AI models) and the international arbitrage opportunities that may arise from differing international copyright legislation. The recommendations were later ranked with the opt-out mechanisms and limited licensing schemes to be most likely to be effective. Although that introducing a more fair use-inspired system may have its benefits in providing a more flexible legal approach, it would require a substantial change in EU copyright legislation, and with the somewhat diminished rights for copyright holders this would be unlikely to succeed. The recommendation of DRM (digital rights management) is also unlikely to be successful. As it would require not only international cooperation, but also require all the world's manufacturers of content producing equipment and software to cooperate to create a single usable DRM mechanism. The costs

of which would likely fall back on the copyright holders and users, thereby making this approach unlikely to succeed.

In conclusion, the field of copyright and artificial intelligence is one that shall continue to grow for the coming years both in size and in (regulatory) importance. The legal and economic implications of using copyrighted materials in AI-generated works are numerous as discussed, and this practice should be properly balanced to ensure that the rights of the copyright holders nor its users are being negatively affected. Which could be done by introducing a sandbox framework for AI which allows for both a focus on (new and improved) licensing schemes and clear opt-out mechanisms for right holders. As well as by providing a clear framework to operate in for both right holders as well as AI developers would be crucial to ensure that we would be able to both enjoy the benefits of such generative AI models, as well as being able to continue to protect human artists.

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