

## **AI-driven media production and copyright: Implications for value creation in the media industry**

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### **Abstract**

This paper examines the use of artificial intelligence (AI) in the media industry with particular consideration of copyright and its implications for media-related value creation. While AI is increasingly applied across journalism, music production, and film and television production, its growing role in creative processes raises unresolved questions concerning authorship, copyright protection, rights allocation, and the lawful use of training data. Against this background, the paper analyses the economic relevance of copyright uncertainty in AI-supported media production rather than approaching the issue solely from a doctrinal legal perspective. The study first outlines the technological foundations of AI and its value-creating potential in the media industry. It then examines the basic principles of copyright law relevant to media products and analyses selected application fields in which AI is already affecting creative and production processes. The findings show that, under the current state of weak AI and the prevailing copyright framework, AI itself cannot qualify as an author because copyright protection remains tied to human intellectual creation. Copyright protection may arise only where human contribution to the creative process remains sufficiently substantial. At the same time, uncertainty regarding AI-generated outputs and copyrighted training data creates significant managerial challenges for media firms, particularly in relation to rights clearance, monetisation, governance, and innovation strategies. The paper concludes that the central challenge lies less in recognising AI as an author than in developing a regulatory and managerial framework that enables innovation while protecting human creative work and ensuring legally secure media value creation.

**Keywords:** Artificial Intelligence, Media Management, Media Production, Copyright, Generative AI, Value Creation, Change Management

**JEL Classification:** L82, O33, K4

## 1. Background of the Study

The leaps in development of hardly any other technology have proved to be as revolutionary as they are controversial (Grätz 2021, p. 2). Artificial intelligence is becoming increasingly significant, particularly in the media industry, and is developing into a “driver of the digital economy” in many sectors (Buxmann & Schmidt 2021, p. 27). Although the use of AI in the media industry is currently still at an early stage, the impact on the creation of creative content such as images, text, audio and video is already becoming clearly apparent (Hegelich et al. 2022, p. 6). The technology thus influences not only operational processes along the media-related value chain, but also the organisation of creative work, the exploitation of content and the development of new business models.

However, the increasing integration of AI into production and exploitation processes is accompanied by considerable uncertainties. These relate in particular to the copyright classification of AI-generated content and thus to the question of under what conditions such works can be protected, commercially exploited and used for business purposes (Grätz 2021, p. 4; Schmidt 2023, p. 65). For media companies, this gives rise not only to legal but, above all, to business-related challenges, as unclear regulatory frameworks influence investment decisions, process design, the allocation of responsibilities and the strategic use of AI-supported applications. At the same time, overcoming these legal and structural uncertainties requires far-reaching dynamic capabilities, particularly with regard to the reconfiguration of existing resources and routines, in order to successfully embed AI within the organisation despite the unclear legal situation (Jenne 2026). At the same time, the possibility of generating original, knowledge and creative content is increasingly calling into question the traditional role of human labour in media-related production processes (Grätz 2021, p. 6).

Against this backdrop, this paper examines the copyrightability of AI-generated works and analyses their business relevance for the media industry. The central question is what impact copyright uncertainties have on the use, exploitation and strategic integration of AI in media-related fields of activity. The focus is therefore not on a purely legal-theoretical assessment, but on analysing the consequences for companies in the media industry arising from the unclear copyright classification of AI-generated content. Beyond the challenges already outlined, the growing deployment of generative AI in media production exposes a structural gap between the pace of technological advancement and the adaptability of existing legal frameworks. While copyright law across major jurisdictions remains anchored to the principle of human authorship, the practical boundaries of that principle are being eroded by AI systems capable of producing commercially viable outputs with diminishing human input. This gap is not merely academic: it translates directly into unresolved questions of liability, contractual risk, and the legitimacy of revenue streams derived from AI-assisted content.

Compounding this challenge is the dual-sided nature of the copyright problem in AI-mediated media production. Legal uncertainty does not arise only from the question of whether AI-generated outputs qualify for protection, but equally from whether the training data used to develop these systems was lawfully obtained and processed. In the media sector, where the raw material of AI training, text, audio, image, and video, is itself the industry's core protected output, this input-side dimension introduces a systemic risk that extends across the entire value chain. A further dimension concerns the international fragmentation of legal responses. As early comparative cases from the United Kingdom and China illustrate, different jurisdictions are already diverging in their treatment of AI-generated works, creating regulatory arbitrage risks for media companies operating across borders. In the absence of harmonised standards, firms face the prospect of managing inconsistent rights regimes simultaneously, adding compliance complexity to an already uncertain operating environment.

Against this backdrop, the present paper argues that copyright uncertainty in AI-supported media production is neither a transitional inconvenience nor a purely doctrinal matter awaiting legislative resolution. Rather, it constitutes a structural condition that media companies must actively govern through legal risk management, organisational adaptation, and strategic foresight in order to sustain legally secure and economically viable content creation.

## **2. Fundamentals of Artificial Intelligence in the Media Industry with Regard to Copyright**

### **2.1 Value Creation through Artificial Intelligence in the Media Industry**

Shaped by the advancing state of development of artificial intelligence (AI) and the associated research, the media industry is currently undergoing a transformative phase. The turn of the millennium already brought about a digital wave with the internet, which triggered disruptive yet revolutionary changes in many industries (Breyer- Mayländer 2022, p. 9; Müller-Lietzkow 2020, pp. 209–210). Schmidt (2023, p. 65) even equates the current dawn of the age of artificial intelligence with the fundamental shift from analogue to digital media.

The complexity of the media industry and its various segments lend it particular significance. The sector deals with the creation of informative and entertaining content (Wirtz 2019, p. 16) and, for analytical purposes, can be simplified into the production, bundling and distribution (Breyer-Mayländer 2022, pp. 4–5) of content in the segments of text, image, audio and video (Hegelich et al. 2022, p. 6). At the same time, it must be borne in mind that a clear demarcation of these areas is hardly possible in times of media convergence and interconnectivity (Müller-Lietzkow 2020, p. 211). With regard to the potential applications of AI, Müller-Lietzkow (2020, pp. 212–220) recommends a differentiation into the media activities of journalism, presenting and avatars, music production and distribution, film and series production, and digital games.

Each of these areas is already supported by AI to varying degrees (Schmidt 2023, p. 65). This is made possible by the technology's broad spectrum of applications, which at the same time makes

it difficult to formulate a clear and precise definition. The subfield of computer science known as artificial intelligence deals with the development of intelligent machines with the aim of creating autonomously acting (Buxmann & Schmidt 2021, p. 6) „intelligent agents“ (Franklin & Graesser 1997, p. 23) that perform tasks which typically require human capabilities (Arweck 2023, p. 449). The greater a machine’s autonomy and effectiveness in solving complex problems, the more intelligent it is considered to be (Mainzer 2019, p. 3). Although the current state of development is still at an early stage and numerous economic opportunities remain untapped, the potential of AI cannot be overlooked. Buxmann and Schmidt describe it as “the most important foundational technology of our time” (2021, p. 27).

This potential did not remain undiscovered for long in the media industry either. AI tools are currently being developed across various fields of application to support creative professionals whilst simultaneously improving existing content and tools in media production (Gethmann et al. 2022, p. 10; Schmidt 2023, p. 65). The term ‘tool’ is central here, as current research indicates that only so-called narrow artificial intelligence (Artificial Narrow Intelligence) is available, which can efficiently solve specific tasks with the aid of algorithms. In contrast, there is strong artificial intelligence (Artificial General Intelligence), which is intended to functionally match human intuitive and independent thinking and autonomously solve problems in various contexts. However, this stage of development has not yet been reached (Cechak 2022; Hauck & Pagel 2020, p. 57).

The functions of narrow AI are limited to a specific area of application (Cechak 2022). To this end, algorithms are developed that generate solutions for a specific problem (Buxmann & Schmidt 2021, pp. 6–7; Hauck and Pagel 2020, p. 57). Machine learning forms a central foundation of AI development (Buxmann & Schmidt 2021, p. 7). In this process, algorithms are trained to recognise patterns in datasets and to further develop their capabilities based on these experiences, without requiring additional coding by a developer (Arweck 2023, p. 449). For example, an algorithm can be trained using photographs to recognise animal characteristics in order to independently determine their species (Mayer 2018, p. 31).

Machine learning is based on the principle of artificial neural networks, which are structurally modelled on the human brain and are designed to simulate it (Mayer 2018, p. 31; Buxmann & Schmidt 2021, p. 14). The AI software models neurons that exchange information with one another. The training data is processed within these neurons and passed on via connections (synapses). These may be input units for input data, hidden units representing the inner layers and output units for output data (Mayer 2018, pp. 31–32; Hauck & Pagel 2020, pp. 57– 58; Buxmann & Schmidt 2021, pp. 14–15).

The use of weak AI is already standard practice in many areas of the media industry, for example in the production of weather reports or stock market updates in journalism (Arweck 2023, pp. 449–450). Here, too, algorithms recognise patterns and establish links between datasets in order to

generate new reports on this basis (Buxmann & Schmidt 2021, pp. 6–9; Schmidt 2023, pp. 66–69). Nevertheless, it should be noted that the current quality of these texts does not yet make human input dispensable (Schmidt 2023, pp. 66–67).

## 2.2 Fundamentals of Copyright in the Media Industry

The use, production and distribution of creative content form the basis of the media industry (Müller-Lietzkow 2020, p. 210). Due to its dependence on creative works in the fields of image, text, audio and video, the protection of authors in this industry is of central importance (Hegelich et al. 2022, p. 6). In Germany, copyright law is responsible for safeguarding the economic and moral interests of creative artists and their works (Section 1 UrhG; Section 11 UrhG; Hoeck 2011, p. 68).

Of particular relevance to the media sector, according to Section 2(1) sentences 1–7 UrhG, are “literary works, such as written works, speeches and computer programs”, “musical works”, “photographic works” and “cinematographic works”. At the same time, the text of the law defines that only those products are considered “works” which constitute “personal intellectual creations” (Section 2(2) UrhG) and thus fulfil the criterion of a sufficient degree of creativity. Accordingly, it must be an entirely new and individual creation of a certain scope, which is also perceptible to the senses. This scope may vary depending on the nature of the work (Kaesler 2007, pp. 21–22; Hoeck 2011, pp. 68–69). According to Section 7(1) of the German Copyright Act (UrhG), the author is the person who has actively and to a significant extent contributed to the creation of a work; according to Section 8 UrhG, there may accordingly also be co-authors. It is essential here that the creator can only be a natural person. A company or organisation cannot be an author (Kaesler 2007, p. 28). In the media industry, this may include authors, composers or software programmers. Protection lasts for 70 years after the author’s death, no separate registration is required for this (Section 64 UrhG; Kaesler 2007, p. 21).

Copyright is divided into moral rights and economic rights. Moral rights, which the author cannot transfer, confer upon him, in particular, the right to publication (Section 12 UrhG), to recognition of authorship (Section 13 UrhG) and to protection against distortion of the work (Section 14 UrhG). In contrast, there are economic rights, which grant the author the exclusive right to determine the use of their work. These include, amongst others, the right of reproduction (Section 16 of the German Copyright Act), the right of distribution (Section 17 of the German Copyright Act), the right of broadcasting (Section 20 of the German Copyright Act) and the right of reproduction by means of visual or audio media (Section 21 of the German Copyright Act). Only the author is entitled to transfer these exploitation rights to third parties by means of a licence agreement (Kaesler 2007, p. 31).

Copyright frameworks can vary from country to country. In the age of digitalisation, this can lead to conflicts of interest, particularly in the cross-border media market. As early as 1887, the ‘Berne Convention’ established an international treaty on copyright. Since then, authors from the 164

member states have enjoyed the same protection for their works in their own countries as in the respective participating foreign countries (Hoeck 2011, pp. 70–71). In addition, the Universal Copyright Convention (UCC) came into force in 1952. This convention is intended to eliminate differences regarding the interpretation of copyright law and thus enable all countries in the world to accede to it (Joyce et al. 2016, p. 22). In this context, copyright also gained international significance, in combination with the author's name and the date of publication, the circled 'C' protects authors across borders (Ulmer 1952, p. 667; Hoeck 2011, p. 69). The copyright symbol is frequently found in connection with works in the media industry. Although this is the English-language equivalent of copyright, it should be noted that it is predominantly used in the Anglo-American legal system (Hoeck 2011, p. 69). The focus here is more strongly on the economic value of the works (Klimpel & Rack 2023, p. 15). Furthermore, the copyright holder need not be the same as the creator. It may also be a legal entity, such as the publisher of a book (Joyce et al. 2016, p. 8).

### **2.3 Areas of Application for Artificial Intelligence in the Media Industry in the Context of Copyright**

Copyright constitutes an essential component of the media industry. Protection extends to the fundamental media types of image, text, audio and video (Hegelich et al. 2022, p. 6), thereby recognising the work of creative professionals. However, the emergence of artificial intelligence in the media industry's fields of activity is leading to a critical overlap that challenges the legal foundations and calls into question the role of the human creator (Grätz 2021, pp. 3–4). For the analysis of AI applications in the media industry, Müller-Lietzkow (2020, pp. 212–220) recommends examining the fields of journalism, presenting and avatars, music production and distribution, film and series production, and digital games. From a copyright perspective, the focus should be on the creation of AI-generated works, as these are already increasingly supporting the human creative process in various fields of application and thereby creating added value for the media industry (Schmidt 2023, p. 66; Streckmann 2023a, pp. 21–22). By bringing together the fields of the media industry, artificial intelligence and copyright law, three areas of activity in particular come to the fore: journalism, music production, and film and series production. The writing of texts is one of the fundamental tasks of the media industry, as many ideas initially take shape in written form. In journalism, written works that fall under copyright law constitute the end product (Section 2(1) of the German Copyright Act). With the public release of the 'ChatGPT' language model in 2022, writing texts – or having them written – has become easier than ever (OpenAI n.d.a). Consequently, AI in the field of natural language processing is currently one of the most popular forms of generative AI (Aydin & Karaarslan 2023, p. 131). With the aid of machine learning, the chatbot is capable of generating complete texts based on just a few inputs (prompts), which are barely distinguishable from texts written by humans. The version, 'GPT-4', is reportedly already capable of creativity and sophisticated problem-solving (Roe & Perkins 2023, p. 2).

In addition to written works, musical works also fall within the scope of copyright protection (Section 2(1) of the German Copyright Act). In the field of music production, the use of artificial intelligence has become increasingly relevant in recent years (Klostermann 2023). Although the involvement of technology in the music scene is not a new concept, the independent and autonomous composition of music (Artificial Intelligence Pop Music) is described as the dawn of a new era (Avdeeff 2019, p. 1). The use of AI as a tool in music production, for example to enhance and correct vocals or sounds, has been common practice for some time now (Avdeeff 2019, p. 2). However, the complete composition of musical pieces is currently still in its infancy, although it is becoming clear that this will soon be possible (Makhmutov et al. 2020, p. 3003).

AI is also making significant progress in the visual domain. Based on just a few prompts, AI systems such as ‘Mindverse’ (Mindverse n.d.) or ‘Dall-E’ (OpenAI n.d.b) can generate images that are barely distinguishable from photographs. The editing of existing images has also reached a level comparable to the work of a Photoshop expert. Video production also saw significant leaps in development in 2023 with the AI applications “Gen-1” and “Gen-2” (Runway 2023a/b) (Scheuer 2023). Although the production of complete feature films or series is not yet possible, AI is already being used in the film industry for production support tasks (Schmidt 2023, pp. 65– 68; Streckmann 2023, pp. 21–22). According to Klimpel and Rack, from a copyright perspective, film ranks among the “most complex and challenging cultural products” (2023, p. 6). Against the backdrop of economically significant AI-generated paintings (Elter 2020, p. 182), creative projects such as “The Next Rembrandt” (Burns 2023, pp. 1–2) or „Edmond de Belamy“ (Elter 2020, p. 182) have further intensified the copyright debate surrounding artificial intelligence (Grätz 2021, pp. 3–4).

### **3. Analysis of the Use of Artificial Intelligence in the Media Industry with Regard to Copyright**

#### **3.1 Analysis of the Creative Output and Creative Level of Artificial Intelligence**

To clarify the question of authorship of AI works in the media sector, a comparison is first made between copyright requirements and AI-specific characteristics. The analysis is based on relevant sections of copyright law, against which the current capabilities of AI are examined and classified in terms of copyright. Building on this, the issue of the use of artificial intelligence in the media industry is further clarified from a copyright perspective, using selected media sub-markets as examples.

Under Section 1(1) of the German Copyright Act (UrhG), only the author may claim the protection afforded by the law. At the same time, the work must also fulfil certain requirements. Section 2(1) of the UrhG lists the categories of works eligible for protection. The form of the created work may therefore consist of text, images, audio or video. It should also be noted that computer programs fall within the category of literary works (Section 2(1) UrhG). The creation of original literary works by ‘ChatGPT’ (OpenAI n.d. et al.) can already be described as a basic function of today’s

AI technology. Similarly, works of music and art generated by AI demonstrate that intelligent agents are fundamentally capable of producing works that fall within the spectrum of protected work types (Elter 2020, p. 183; Kuschel 2020, pp. 99–100). Were this not the case, the discussion regarding copyright protection for AI works would be moot from the outset.

At the same time, Section 2 sets out a further criterion that further restricts the definition of a work in relation to AI. The creation must be a „personal intellectual creation“ (Section 2(2) of the German Copyright Act) in order to establish the status of a work and thus eligibility for copyright protection. The term „personal intellectual creation“ is often regarded as ambiguous in legal terms, as it does not define a clear boundary for eligibility for protection (Brisges 2022, p. 17). In a judgment of the Federal Court of Justice, the term “personal intellectual creation” is described as „a creation of an individual character, the aesthetic content of which has reached such a level that, in the opinion of circles receptive to art and reasonably familiar with artistic views, one can speak of an “artistic” achievement“ (Federal Court of Justice, judgment of 13 November 2013 – I ZR 143/12 – Higher Regional Court of Schleswig, Regional Court of Lübeck, p. 8).

From this, the criterion of individuality can be derived. A work is individual if it differs from other works. Since AI-generated content may constitute newly generated and independent creations, this criterion could in principle be regarded as fulfilled. Added to this are “aesthetic content” and “artistic achievement” as further points of reference. One would readily attribute these qualities to a painting whose price is driven up to \$400,000 at auction. However, the painting „Edmond de Belamy“ is an AI-generated work (Elter 2020, p. 182).

Whether algorithm-driven artificial intelligence actually possesses creativity can, however, only be answered to a limited extent given the current state of knowledge. AI is now, however, said to possess „artificial creativity“ (AC) or „computational creativity“ (Stubbe et al. 2018, p. 264). This refers to the limited scope within which a machine is capable of developing something creative, without, however, matching the creative capacity of humans (Stubbe et al. 2018, p. 268). The central problem, however, lies in the characteristic of „personal“ creation, as this requires a human agent under current law. Consequently, only „creative individual human achievements“ can be protected under copyright law (Elter 2020, p. 184). Human involvement thus becomes a central prerequisite for the concept of a work under copyright law (Leschke & Salden 2023, p. 25). For the European Court of Justice, too, human originality is inextricably linked to the eligibility of a work for protection (Elter 2020, pp. 184–185; Hacker 2021, pp. 225– 226).

In the media industry, AI is currently used primarily as a supporting tool. This in particular gives rise to further questions of demarcation. As long as humans use AI as an aid, human originality – and thus, in principle, the creator’s copyright – is preserved. However, as the scope of AI’s capabilities grows, human involvement – and with it the degree of „intellectual creation“ – could diminish. The extent to which „AI-assisted human creation“ remains eligible for copyright protection remains open (Leschke & Salden 2023, p. 26). This highlights a key area of tension

within the media industry even at the level of the concept of a ‘work’: AI can produce commercially exploitable content without its copyright eligibility and attribution being clearly established.

### **3.2 Analysis of Authorship: Artificial Intelligence as a Tool in the Media Industry**

#### *3.2.1 Journalism*

With the growing prevalence of generative AI language models, the term „robot journalism“ (also known as automated journalism) is no longer a foreign concept in the media industry (Latar 2015, p. 4; Dörr 2023, p. 204). Within seconds, AI algorithms process datasets into informative and entertaining content (Wirtz 2019, p. 16), create headlines or optimise texts. It is often barely possible to distinguish such content from texts written by humans (Jung et al. 2017, p. 296). Whilst machine-generated content is currently used primarily for routine reporting such as clearly structured weather reports or sports results, more detailed texts are no longer merely a dystopian notion (Latar 2015, p. 4; Vogler et al. 2023, pp. 33–34). This brings the question of copyright for AI-generated works more sharply into focus. For written works by editors or journalists whose contributions are published, copyright generally applies depending on the type of employment. For employed authors, the transfer of usage rights is usually already regulated in the employment contract. Freelance journalists agree on usage rights on a case-by-case basis (Biethahn 2016).

Automated journalism can be divided into three process categories: assistive, generative and distributive technologies (Dörr 2023, p. 206). Assistive technologies support the user in the creation or identification of content (Dörr 2023, p. 209). For example, the „Shorty“ programme from the company Schickler is capable of shortening original texts, whilst „Bertie“ (Forbes) generates suitable headlines for articles (Kadel 2022, p. 47). The news agency Thomson Reuters uses the “Reuters Tracer” system to identify news stories. The AI evaluates up to 13 million tweets daily for their relevance and newsworthiness and, on this basis, generates news alerts (push notifications) with brief descriptions (Dörr 2023, pp. 208–209). Since even for a human being the creation of short push notifications regularly fails to reach the requisite level of creativity, this technology remains of secondary importance for the present copyright issue. The same applies largely to distribution technologies, which essentially involve the mere distribution of news (Dörr 2023, p. 212).

Generative technologies dealing with automated text generation are more relevant from a copyright perspective. These are based on natural language processing. The algorithms are currently capable of selecting and processing structured datasets and, based on relevance assessments, generating and publishing texts (Dörr 2023, p. 210). However, current use in journalism is largely limited to the deployment of „editorial bots“ for the systematic summarisation of stock market reports using „SMC Research“ and sports results using the „Opta Sports“ system (Kadel 2022, p. 8). The level of creativity required for this has so far been rather low, meaning that copyright protection for these works is only of limited consideration.

However, the development of autonomous algorithms could change this classification in the future. Whilst the Generative Pretrained Transformer 3 (“GPT-3”, OpenAI n.d.a) from 2020 was already credited with the ability to produce human-like texts, the AI “GPT-4” (OpenAI n.d.c) is said to be many times more powerful. “GPT-4” was released in March 2023 and, according to its developer OpenAI, is said to possess the capacity for creativity, improved language processing and even an understanding of humour (Filges & Niemsch 2023; OpenAI n.d.c). This could fundamentally transform journalism in the coming years whilst simultaneously creating new challenges regarding the quality of works, authorship and the attribution of rights.

An international comparison shows that this issue is dealt with in different ways. The UK is considered a special case due to the inclusion of „computer-generated work“ in its copyright system (Aplin & Pasqualetto 2019, p. 12). This inclusion designates as the author the person who made the „necessary arrangements“ regarding the tool used to create a work (Daniel et al. 2023). Daniel and colleagues (2023) compare the case of a comic book produced in the US - which did not obtain copyright protection there due to partially AI-generated images - with the rules of UK copyright and conclude that the work would have fallen within the scope of copyright protection. The text of the comic was created entirely by humans (Daniel et al. 2023).

China is also among the pioneers in the use of autonomous journalism (Kuai et al. 2022, p. 1894). As early as 2015, the AI language model „Dreamwriter“ developed by the media company Tencent wrote its first „wordperfect“ (He 2015) business report (Jung et al. 2017, p. 291). In 2019, a landmark copyright ruling was handed down there: a news article produced by AI was granted copyright protection by a Chinese court. The court justified this by citing an “extension of the intellectual activity of the creators of the AI programme to the works written by the software” (Kuai et al. 2022, p. 1894). However, Chinese copyright law differs from German regulations in that the creator does not necessarily have to be the copyright holder; ownership of the copyright may also lie with investors, developers or AI users (Kuai et al. 2022, p. 1902). The recognition of autonomous creativity and originality in human-machine collaboration, as well as the greater scope for innovation under Chinese copyright law, can therefore be interpreted as a potential benchmark for international developments in favour of artificial intelligence (Kadel 2022, p. 33; Kuai et al. 2022, p. 1907).

For the media industry, this means that, particularly in journalism, the technical capabilities of generative systems are growing faster than legal clarity regarding protectability, authorship and exploitability. This increases uncertainty regarding rights clearance and the allocation of responsibility, particularly for editorial processes in which content is scaled, disseminated and commercially exploited.

### *3.2.2 Music production*

A 2020 study surveyed 281 participants of various nationalities on the topic of copyright in AI-generated music. Over a third of respondents (36.7%) agreed that AI should be granted copyright

in its work (“Do you think that an AI can have copyright granted to it as an entity?”; Makhmutov et al. 2020, p. 3005). When the focus is placed on the responses of those with experience in music production, the percentage drops to 25% (Makhmutov et al. 2020, p. 3005). When asked specifically about the authorship of autonomously composed AI music, the majority responded that the rights should be attributed to the programmer or the user of the AI. Only a very small minority considered the AI itself to be the author (“If a music piece was fully generated by an AI tool, the authorship of the resulting music should go to...”; Makhmutov et al. 2020, p. 3006). Although the study is based on copyright law as applied in the US, for example, the approaches are nevertheless similar in terms of how they deal with the AI issue and the currently contested public domain status of AI works.

With “Hello World”, SKYGGE had the first complete album composed by the AI software “Flow Machine” in 2018 (Avdeeff 2019, p. 2). This musical AI is also based on machine learning and is designed to both understand and reproduce the concept of music. In this case, the datasets used consist of audio materials and musical notation, such as the sounds of individual instruments or melodies of well-known songs (SKYGGE, 2018). This raises the question of the extent to which such AI compositions can be considered original and demonstrate artistic originality, or whether they merely replicate existing patterns. The melodies generated by one of the many AI music generators now available, such as „Soundtrap“, „Loudly“ or „AIVA“, are currently licence-free and not protected by copyright (Klostermann 2023).

Furthermore, artificial intelligence is not only capable of generating creative melodies, but also of imitating the voices of prominent artists and having them sing lyrics. On 4 April 2023, the song “Heart on my Sleeve”, sung by the musicians Drake and The Weeknd, was released on various streaming platforms and generated millions of streams. However, the artists had no connection whatsoever to this song. Produced by the TikTok user ghostwriter977, the latter used an AI system to generate the vocals of the famous musicians. The song has since been removed from all platforms, although voices do not enjoy copyright protection and the legality remains in question (Schiffer 2023).

With regard to the creative process, certain parallels can be observed between AI-generated music and human recombinatory performance. A DJ who creates something new using existing songs, beats and rhythms is making an original creative contribution and naturally receives copyright protection for their work (Kawohl & Kretschmer 2006, p. 212). AI systems, too, recognise musical structures, recombine sounds and generate original results from them. The differences are rarely perceptible (Stubbe et al. 2018, pp. 261–262). It is precisely this proximity between human and machine recombination that makes drawing copyright boundaries in the music sector particularly challenging.

Due to the high economic stakes, the implications for the artistic process raise legal questions within the music industry. Music can be streamed via countless platforms, which is why copyright,

together with usage and licensing rights, plays a central role in the remuneration of artists (Makhmutov et al. 2020, p. 1; Fischer 2022). At the same time, AI-generated music can also have positive effects, as it provides other media sectors with easy access to copyright-free melodies (Müller-Lietzkow 2020, p. 215). In music, melodies and short sequences of notes are already considered musical works and thus eligible for copyright protection. The threshold of originality can be met simply through an individual composition (Kitzberger p. 155). This creates a dual tension for the media industry: on the one hand, AI opens up new potential for efficiency and usage; on the other, remuneration models, licensing frameworks and the attribution of creative output become more uncertain.

### *3.2.3 Film and series production*

The creation of audiovisual media such as films and series is underpinned by the interplay of all key aspects of the media sector, as the production of a film or series requires text, sound and imagery. If the moving image format is reduced to its fundamental components, it requires a screenplay, film music and soundtracks, as well as the imagery, i.e. film footage or digitally generated sequences (Schmidt 2023, p. 67; Streckmann 2023a, p. 21; Streckmann 2023b, pp. 15–16). From a copyright perspective, a film work thus consists of a multitude of individual protectable creations.

Under Section 94(1) of the German Copyright Act (UrhG), the rights to the film (reproduction, distribution, publication) belong to the film producer. However, the author is the director, who has made the greatest artistic contribution by organising the individual aspects of film production (Urheberrecht.de 2023). For other contributors, the extent of their own contribution is decisive in determining whether they qualify as co-authors (Section 8(1) UrhG). A cameraman who merely follows the director's instructions does not acquire any corresponding rights. If, on the other hand, an editor makes an independent creative contribution, they may be regarded as a co-author (Urheberrecht.de 2023). The screenwriters on whose works films are based are and remain the authors of their texts, but transfer the rights of use (Section 31 of the German Copyright Act) to the screenplay; involvement in the film may additionally make them co-authors. They receive „reasonable remuneration“ in accordance with Section 32(1) of the German Copyright Act. Actors are regarded as „performing artists“ (Section 92(1) UrhG) and, under Section 77(1) UrhG, hold rights to their performance, the use of which must be contractually regulated.

According to Klimpel and Rack, from a copyright perspective, film ranks among the “most complex and difficult cultural products” (2023, p. 6). This alone makes it clear that the use of AI in this field does not merely affect a single type of work, but intervenes in a dense web of different rights. Many aspects of film production are now supported by AI. Although the creation of complete films or series currently still exceeds the capabilities of AI (Müller-Lietzkow 2020, p. 214), the first AI technologies capable of generating complete video clips from just a few prompts were unveiled in 2023. The start-up Runway is considered a pioneer in this field with its

text-to- video software „Gen-1“ and „Gen-2“ (Runway 2023). Although these are currently still short clips, it is anticipated that the production of full-length feature films will also be possible in the near future (Haeven 2023; Scheuer 2023); the technology has now reached a competitive level and has been progressively integrated into a wide variety of moving-image formats.

The first film trailer resulting from a human-AI collaboration was produced as early as 2017. The system was trained to recognise patterns and emotions in horror films and, based on this knowledge, selected ten clips from the film “Morgan”. The material was subsequently edited by a human (Smith et al. 2017, p. 1799).

Whilst fully AI-driven film production is still in its infancy, significant further developments are expected in this area (Streckmann 2023b, p. 15). The use of AI as a tool in sub-processes of film and series production, such as in the writing of screenplays (Streckmann 2023b, p. 16), in the generation of film music or in the editing of film footage (Streckmann 2023c, p. 19), will bring additional challenges to the film industry, which is already complex in terms of copyright. Precisely because audiovisual productions rely on the combination of numerous individual contributions, the use of AI significantly increases the complexity of rights chains, the allocation of responsibility and contractual safeguards. This also has a direct impact on the strategic programme planning of moving image providers: as linear broadcasters and streaming services rely on predictability and reliability to maintain audience loyalty, copyright uncertainties arising from the use of AI in production must not jeopardise the perceived trustworthiness of the entire programme offering (Jenne & Eigler 2024).

### **3.3 Copyright Implications of Artificial Intelligence Training Data**

To complete the copyright analysis of the use of artificial intelligence in the media industry, the input side of the value chain must also be taken into account. To generate new creations, AI draws on thousands of data sets as training data, many of which are protected by copyright (Leschke & Salden 2023, p. 27). The debate over the legality of the content used therefore creates considerable uncertainty. In the US and the UK, this has already led to legal proceedings (Durantaye 2023, p. 1). Even though the approach there differs in some respects on the basis of copyright law, the fundamental debate remains the same. In Germany, too, copyright and collecting societies have already called for legislative changes with the aim of securing remuneration for the creators of the training data used (Durantaye 2023, p. 2).

To train AI, text, image, music or film files are stored, modified and reproduced (Durantaye 2023, p. 4). In the media sector in particular, this broadens the copyright debate and, in addition to the activities already examined in this paper, brings the creation of presenters and avatars, music distribution and digital games more into focus. Under Section 16(1) of the German Copyright Act (UrhG), this action is, in principle, permitted only to the author. One possibility would be to classify the data under Section 44b of the UrhG as text and data mining, which permits the analysis of copyright-protected data. However, this requires the subsequent deletion of the data (Section

44b(2) UrhG). Scheufen (2023, p. 2) suggests that authors should be given the option to opt out of the use of their data, that AI developers should be subject to a duty of transparency, or that remuneration for authors should be introduced.

Often, the underlying data does not remain in the AI's source code but becomes visible in a representative form. Through so-called deepfakes, visual content can be manipulated or completely altered (Schmidt 2023, pp. 70–71). A recent example is a legal dispute between the internationally renowned actress Scarlett Johansson and the company behind the AI app Lisa AI (Lisa AI n.d.). The app created an AI avatar of the actress and used it for an advertising clip. In addition to her visual characteristics, her voice was also replicated by the AI. However, the actress had never consented to this use (Hochwarth 2023). The exploitation of personal characteristics and their commercial use in the media sector could thus also raise new challenges under copyright law. Furthermore, such practices harbour massive media-economic risks: if AI content that is ethically or legally questionable is used, media companies risk undermining their trustworthiness. This trustworthiness represents an essential and difficult-to-imitate core resource in media competition, the violation of which can cause lasting damage to the relationship with the audience and lead to an immediate loss of viewers (Jenne & Eigler 2024).

Consequently, the copyright issues surrounding the use of AI in the media industry extend beyond the question of whether the output is protectable to encompass the legality of the inputs used. This is of particular relevance to media companies, as not only the subsequent exploitation of AI-generated content, but also the very technical basis of its creation can give rise to legal and economic risks.

## 4. Results and Outlook

### 4.1 Results

This study demonstrates that the increasing prevalence of artificial intelligence across the various sub-markets of the media industry is triggering profound changes and having a lasting impact on the industry's existing value creation logic. The analysis highlights that the copyright classification of AI-generated content represents a central challenge in this context. In particular, the question of recognising creative achievement, the resulting copyright protection and the attribution of corresponding rights proves to be complex and has not yet been conclusively resolved. This makes it clear that the use of AI in the media industry represents not only a technological issue, but also a legal and business transformation issue.

A key finding of the study is that, given the current state of development of weak AI, original copyright protection for the machine itself is not achievable (Leschke & Salden 2023, pp. 26–27; Elter 2020, p. 195). The decisive factor here is that current copyright law is linked to the personal intellectual creation of a human being and thus makes human creativity the central prerequisite for eligibility for protection. It is true that, in academic discourse, AI is increasingly being attributed

a form of „artificial creativity“ (Stubbe et al. 2018, p. 264). At the same time, however, it is evident that this creativity currently relies on the processing, recombination and variation of existing, human-generated data sets. Stubbe and colleagues emphasise that, whilst AI is certainly capable of acting creatively and producing new content in fields such as language, music and visual media, its limitation lies in „going beyond known forms“ (2018, pp. 259–268). Against this background, it can be concluded that whilst AI-generated works may be novel and economically exploitable, they do not generally cross the legal threshold of independent, human-shaped authorship under current law.

At the same time, an analysis of the fields of application shows that the copyright issues vary in severity within the media industry. The tensions are particularly evident in journalism, music production, and film and series production. It is precisely where AI no longer merely performs routine support tasks but increasingly intervenes in creative production processes that the distinction between human and machine creative output becomes more difficult. However, as long as AI is used as a technical aid and humans make the creatively decisive contribution, copyright can continue to be attributed to the user or the human creator (Leschke & Salden 2023, p. 25). The findings of this study therefore suggest that AI should currently be understood primarily as a tool within production processes under human responsibility. However, as the capabilities of these systems increase, this attribution becomes less certain, as the degree of human influence may decrease in individual cases.

For the media industry, this creates a tension that goes beyond the dogmatic legal question. Uncertainty regarding the protectability, ownership and exploitability of AI-generated content directly influences the commercial use of the technology. Media companies face the challenge of not only integrating AI technically into their production processes, but also developing legally sound and economically viable models for usage, rights clearance and monetisation. Copyright law thus becomes a central framework condition for business decisions. This concerns, among other things, the design of editorial processes, the use of AI-based creative tools, the contractual allocation of usage rights, and the question of under what conditions AI-generated content can be strategically exploited. In this respect, this paper demonstrates that copyright ambiguities in the media industry are not merely a legal problem, but also influence investment decisions, innovation strategies and new business models.

Another key finding concerns the role of training data. The copyright assessment of AI use is not limited to the question of whether and to whom the results can be attributed. Equally relevant is the origin of the data used to train AI systems. In the media sector in particular, these datasets are often based on copyright-protected content. This shifts the issue from the output side to the input side of the value chain. The use of copyright-protected data for the development and exploitation of AI will therefore remain a key focus of disruption in the media sector. The study makes it clear

that the copyright debate will in future relate both to the protectability of the content generated and to the legality of the training data used.

## 4.2 Outlook

Looking ahead, it can be assumed that the number of potential objects of protection generated by AI will continue to rise, and the full extent of AI-induced disruption is likely to become fully apparent only over time (Kuschel 2020, p. 98). This is particularly true given the rapid pace of development of current systems and the prospect of more powerful forms of artificial intelligence. Against this backdrop, further development of the copyright framework in the near future appears appropriate, not to block technological progress, but to steer it along orderly and legally secure paths (Elter 2020, p. 195; Grätz 2021, p. 182). International developments already show that, in certain sectors of the media markets, initial steps have been taken towards an expanded copyright-related classification of AI-generated content. These developments can serve as a catalyst for further debate, without being directly transferable to the German legal framework.

At the same time, it is becoming apparent that a hasty equating of machine-generated and human creation would raise significant normative problems. If AI were granted its own copyright claims, this would, at least functionally, assign the machine a human-like status. This would place the fundamental principle of copyright law - namely, the protection of the intellectual achievements of creative individuals - under considerable pressure to justify itself. The boundaries between human and machine creation would become even more blurred. From the perspective of the media industry, it therefore currently seems more appropriate not to focus on direct authorship by AI, but rather on clear rules regarding the attribution of responsibility, clarification of rights and the use of AI-generated content.

In business practice, this means that media companies will have to engage even more intensively with issues of governance, compliance and the strategic integration of AI in future. The more AI is integrated into creative and operational processes, the more important robust procedures become for documenting human involvement, securing usage rights and verifying the origin of data used. Dealing with AI is thus increasingly becoming a management task that must combine technological innovation, legal risk management and economic exploitation strategies. As further research shows, viewing AI purely as an isolated technological tool will no longer suffice in the future. Rather, AI must be strategically embedded as an organisation-wide core competence in the sense of the dynamic capabilities approach – that is, through the ability to sense, seize and transform. Only when legal governance structures and AI-related learning routines are firmly embedded within the organisation can a sustainable competitive advantage for media companies be generated from the mere intensity of technological use (Jenne 2026).

The outlook presented in this paper thus suggests that the central challenge in the future is likely to lie less in the recognition of AI as an author and more in the creation of a regulatory and

corporate framework that enables innovation, protects human creative output and, at the same time, takes into account the requirements of AI- supported media value creation.

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