



Copyright Law Analysis Related to the Use of Artistic Image Works in Artificial Intelligence Training Data in Indonesia and Singapore

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Abstract. The emergence of Artificial Intelligence presents a challenge in Copyright law in the context of visual artworks, as various Artificial Intelligence systems are currently available to create images. Based on this, the research aims to examine the legal regulations regarding the use of Artistic Image Works in Artificial Intelligence training data according to the Copyright Laws of Indonesia and Singapore, as well as how Copyright regulations can be developed to address these legal issues. This study uses a normative legal research method with a descriptive nature, employing statutory and comparative approaches. The data consists of secondary legal materials, collected through library research and analyzed using a syllogistic method with deductive reasoning. The findings and discussion of this research reveal that there is currently no clear legal basis for the use of Artistic Image Works in Artificial Intelligence training data under Law Number 28 of 2014 on Copyright in Indonesia, whereas the Singapore Copyright Act 2021 has accommodated this issue through provisions on Fair Use and Computational Data Analysis. Therefore, a reformulation of regulations is needed regarding several aspects such as Use, Reproduction, and the role of Collective Management Organizations.

Keywords: Artistic, Image, Works, Artificial, Intelligence.

1. INTRODUCTION

The concept of Artificial Intelligence (AI) was introduced in 1956 during a conference held at Dartmouth College, United States organized by several researchers with the main goal of creating machines that can work in a manner similar to the human mind (Mijwil et al., 2023 : 100). The development of Artificial Intelligence has essentially progressed rapidly in the last few decades, giving birth to various types of AI with different levels of intelligence. Artificial Narrow Intelligence (ANI), it has become an essential part of our daily lives, enabling specific functions like facial recognition and language translation. Meanwhile, the concept of Artificial General Intelligence (AGI), which has cognitive abilities comparable to those of humans, is still the main goal of researchers. AGI is projected to be able to solve various complex problems and learn from its own experiences. Furthermore, the concept of Artificial Super Intelligence (ASI), which surpasses human cognitive abilities, has been the subject of intense debate among scientists and the public. ASI has the potential to revolutionize many aspects of human life, but also raises concerns about the risks involved. However, AI in the continuity of its application process certainly depends on training data and human prompts or instructions when using AI systems (Lee, 2023 : 7).

The development of AI that can resemble human intelligence requires readiness from the state and society so as not to conflict with each other. Artificial Intelligence has shown that it can well produce outputs that are traditionally valued by society as creative. The field of artificial intelligence (AI) has made remarkable strides in recent years, transforming industries and reshaping the way we interact with technology, with one of the most fascinating and impactful breakthroughs being generative AI (Bansal et al., 2024 : 2). These generative models enable individuals to actively participate in the creative process using text-to-image platforms like Midjourney, Stable Diffusion, and DALL-E (Zhou & Lee, 2024 : 1). Through these developments certainly raises two sides, where technology can make a significant contribution in various fields, but can also create a violation of the law, especially in the field of copyright law.

Observing the continuation of the era of artificial intelligence, today it has raised fundamental questions about copyright aspects, such as the process of works produced by machines. The crucial issue is the use of copyrighted works as training data for AI models. The fact that AI models are required to be trained with very large data so that the training data potentially contains works that are protected by copyright. If data is used without the consent of the copyright holder and not in accordance with applicable laws and regulations, then it can undoubtedly be considered copyright infringement. This phenomenon certainly creates a complex legal dilemma. On the one hand, AI model training still requires a large amount of data to achieve optimal performance. However, on the other hand, the unauthorized use of copyrighted data can stifle creativity and innovation, and harm the creators.

Many online platforms now provide users with the ability to create custom image-based products using AI technology. These tools empower individuals to design unique visuals or artworks by utilizing the advanced capabilities of artificial intelligence. This certainly makes it easy for anyone to learn and create images by simply typing words and then entering them in a prompt (Oppenlaender, 2024 : 3763). Observing this condition, as illustrated above, an AI program that has training data in its system will create an artwork that can resemble the original work created by the creator. In fact, generative Artificial Intelligence (AI) models are capable of producing synthetic images that are very similar to, or almost indistinguishable from, the original image (Kather et al., 2020 : 1). Therefore, the development of AI technology is certainly a threat that needs special attention because it can potentially threaten the intellectual rights of art creators whose works are used in the training data.

The finding that supports the artists or creators to oppose the use of AI is the list of names of approximately 16,000 creators that have allegedly been used to train Midjourney's generative artificial intelligence program (California, 2023). The list also includes Sarah Andersen, Julia Kaye, Karla Ortiz, Grzegorz Rutkowski, and Gerald Brom who are all plaintiffs in a class action against Midjourney, Stability AI, DeviantArt, and Runway AI for unauthorized use of their artwork. There are even names of Indonesian creators of the artwork such as Fajareka Setiawan, Indra Nugroho, Rio Krisma, and Wisnu Tan. The process of unlawfully converting copyrighted artwork into AI training data certainly has the potential to deprive content creators of their intellectual property, especially if the AI tools and works are commercialized.

Seeing the progress of the development of the AI era is a challenge in itself that has implications for copyright legislation. Under these conditions, a responsive legal provision is needed to answer problems within the scope of copyright. Legal provisions that are not able to follow the dynamics of the times will certainly lead to a legal vacuum so that law enforcement and justice are not optimal. Therefore, based on the applicable law in Indonesia, it is necessary to conduct a review of the provisions in Law No. 28 of 2014 on Copyright to answer the challenges of the era of increasingly massive development of AI. Based on Article 1 number 1 of Law Number 28 of 2014 on Copyright states that copyright is the creator's exclusive right, which automatically arises under the declarative principle once a work is expressed in a tangible form, subject to limitations as outlined by applicable laws and regulations. Exclusive rights in this context refer to privileges solely granted to the Creator, preventing others from using these rights without the Creator's consent. Consequently, copyright holders who are not the original creators possess only a portion of these exclusive rights, specifically the economic rights. Regarding the types of creations protected under Article 40 paragraph (1) of Law Number 28 of 2014 concerning Copyright includes creations in the fields of science, art, and literature.

Essentially, within the framework of Indonesia's positive law, although a creator has exclusive rights to his creation, but the Law No. 28 Year 2014 in Chapter VI of Law No. 28 Year 2014 on Copyright has set restrictions on the exclusive rights. Copyright law has regulated a number of exceptions to the exclusive rights of copyright holders. However, the limitations of these exceptions do not yet have a clear legal framework regarding the use of copyrighted artwork as training data in the development of AI. Before proceeding with an in-depth discussion on the creation of Artificial Intelligence-generated image artwork, it is imperative to critically examine the origins of the training data used by the AI system.

This analysis is crucial, as it is intrinsically linked to potential copyright infringement issues. Therefore, as an effort to overcome the rapid AI problems, it is necessary to study and compare with other countries' regulations that have accommodated AI issues in the context of copyright (Ramli, 2023 : 2).

The analysis to get answers on the use of image artworks in Artificial Intelligence training data, can be reviewed through a comparative study with Singapore's regulations that have anticipated and adapted to Copyright challenges. The 2021 amendments to the Singapore Copyright Act have considered computational analysis for computer program. Such computational data analysis necessarily includes provisions on the exclusion of the use of copyrighted works when used as training data for AI programs. The Singapore Copyright Act indirectly provides a defense for the use of copyrighted works of art if they fall under the computational data analysis exception under Sections 243-244 or sections 190-191 of the Singapore Copyright Act. Therefore, these provisions can protect the intellectual property rights of the creators of pictorial artworks. Even through the exceptions introduced in the Singapore Copyright Act 2021 are highly relevant to generative AI training (D. M. Tan et al., 2025).

The current Indonesian Copyright Law Regulation certainly requires a review to accommodate legal issues that can arise from the presence of Artificial Intelligence. Based on the description that has been presented, the creator's conducts further discussion on the legality of the use of works of art images on Artificial Intelligence training data from the perspective of Copyright Law of Indonesia and Singapore. After knowing the legality will be obtained how Copyright Law can be developed in Indonesia.

2. METHODS

Legal research is a process to solve a legal issue faced in social life. Therefore, it requires abilities that can aim to identify and analyze legal problems, legal reasoning, and provide solutions to legal problems (Marzuki, 2021 : 60). This legal research method is a descriptive normative legal research. The research approach that the author uses is a statutory approach and a comparative approach, especially to the Copyright Law of Indonesia and Singapore. With regard to this, the data utilized consists of secondary data derived from primary and secondary legal sources. The method employed for gathering legal materials is a literature review. The technique of collecting legal materials applied is literature study, which is then processed using technical analysis of legal materials in the form of a syllogism method with deductive thinking patterns.

3. RESULTS AND DISCUSSION

Comparative Analysis of the Regulation on the Use of Artistic Image Works in Artificial Intelligence Training Data Based on Indonesian and Singaporean Copyright Law

Referring to Article 1, point 1 of Law Number 28 of 2014 on Copyright, copyright refers to the exclusive rights granted to creators, which arise automatically under the declarative principle once a work takes a tangible form, subject to limitations outlined by applicable laws and regulations. In this context, a creation is defined as any original work in the fields of science, art, or literature, developed through inspiration, creativity, thought, imagination, dexterity, skill, or expertise and expressed in a concrete form. As a result, any creation that has been realized in tangible form is granted exclusive copyright, which includes both moral and economic rights. Therefore, no one else can exercise these rights without the consent of the creator's.

Similarly to Indonesia's Copyright Law, the Singapore Copyright Act of 2021 also recognizes the concept of Moral Rights, which belong to the creator's and cannot be assignable, as regulated under Article 386. Overall, for any material protected by copyright, the action related to the material must be carried out with the permission or authorization of the party entitled to the copyright. Without such permission then the action can be considered as copyright infringement. Based on the fundamental principles of copyright law, which share similarities, it is appropriate to further examine how regulations apply to the use of artistic images works in Artificial Intelligence training data.

Legal Regulation Based on Indonesia's Copyright Law

Based on Law Number 28 of 2014 concerning Copyright, there is no explicit regulation regarding the use of image artwork in Generative Artificial Intelligence training data. Thus, an approach through legal interpretation is needed to find out how the current arrangements contained in Law Number 28 of 2014 concerning Copyright when faced with the issue of the problem. Some of the provisions in Chapter VI of the Copyright Law have basically contained arrangements regarding what actions are considered or not considered as copyright infringement. Although there are limitations in the current Copyright regulations, using works for training data in AI development can at least be viewed as a form of Reproduction (Gema, 2022 : 12). Based on this condition, the creator's in this study further investigates the concepts of Use, Reproduction, and Fair Use, correlating them with the issues being examined regarding Artificial Intelligence Training Data.

Against acts that are not considered as Copyright infringement are guided by Article 43 of Law Number 28 of 2014 concerning Copyright. However, it needs to be further understood The provisions outlined in Article 43 letter d state that the creation and distribution of copyrighted content through information and communication technology must be non-commercial, provide benefits to the creator or related parties, or occur with the creator's consent or lack of objection. Observing these provisions, if a condition of the creation and dissemination of Copyright content through information and communication technology media is carried out commercially and does not benefit the Creator or related parties, or the Creator expresses objection, then such a thing can be categorized as a Copyright infringement.

First, additional limitations on copyright are outlined in Article 44, paragraph (1), which states that "The use, extraction, reproduction, and/or modification of a work or related rights product, in whole or in substantial part, does not constitute copyright infringement if the source is properly acknowledged or fully cited." The scope of this provision is limited to use in education, research, academic writing, report preparation, criticism or review of an issue; security and the administration of government, legislative, and judicial affairs; lectures for educational and scientific purposes; and performances or presentations that are not for profit. The term "Use" in the aforementioned article can indirectly be interpreted as "Commercial Use" as referred to in Article 1 point 24 of Law Number 28 of 2014 on Copyright. In this context, Commercial Use refers to the utilization of a creation and/or related rights product with

the aim of obtaining economic benefits from various sources or receiving compensation.

According to the creator's, a condition if there is a use of image artwork in Generative Artificial Intelligence training data where the access mechanism for using the site and the work is used for commercial purposes, then it can be considered as Commercial Use. Therefore, it correlates with the application of the provisions referred to in Article 9 paragraph (3) which states that "Any person without the permission of the creator or copyright holder is prohibited from reproducing and/or commercially using the creation." This is because commercial use is certainly included in the realm of the exclusive rights of the Creator or Copyright Holder. Therefore, Article 44 paragraph (1) provides exceptions to copyright infringement only for non-commercial use with specific purposes, such as education, research, and government interests, as long as it meets the conditions in the form of sources mentioned or listed in full and does not harm the reasonable interests of the Creator or Copyright Holder.

Based on these conditions, the implementation of exclusion procedures and licensing to the Creator or Copyright Holder must be considered by the Provider of Generative Artificial Intelligence. The provisions of Article 44 paragraph (1) of Law Number 28 of 2014 concerning Copyright are limitative as formulated in letters a through d so that the correlation to the use of image creations used in Generative Artificial Intelligence training data is very limited. In fact, most of the Generative Artificial Intelligence sites do not include or mention the complete source of information. Therefore, if there is a dispute between the Creator and the Artificial Intelligence Developer over the training data, there will certainly be difficulties in resolving it due to the limitations of the current article formulation.

Secondly, it can be reviewed based on the concept of "Reproduction." As referred to in Article 1 point 12 of Law Number 28 of 2014 on Copyright, Reproduction is the process, act, or method of making one or more copies of a creation and/or phonogram in any manner and form, whether permanently or temporarily. The categorization of Reproduction can be correlated with usage, considering that when a creation is used in Generative Artificial Intelligence training data, it subsequently generates a work according to the prompt entered by the user. The use of artistic creations in the form of images as training data for Generative Artificial Intelligence models can essentially be considered a form of Reproduction. This is because it involves copying, processing,

and utilizing the visual elements contained in each original creation to produce an output that may resemble the original work used in the training data.

According to the current Copyright Law in Indonesia, the reproduction of a copyrighted work has a high potential to constitute copyright infringement, which may interfere with the economic rights of the creator. Thus, as long as there is no explicit regulation governing the use of artistic creations in the form of images as training data, Article 9 paragraph (3) of Law Number 28 of 2014 on Copyright must be considered. Without the implementation of a licensing procedure granted by the creator or copyright holder, the reproduction carried out by Generative AI constitutes copyright infringement, except when it falls within the permitted exception domain.

The correlation of the context of using artistic creations in the form of images as training data for Generative Artificial Intelligence includes at least several formulated provisions, such as Reproduction based on Article 44 paragraph (1), Article 45, and Article 49 of Law Number 28 of 2014 on Copyright. Based on Article 44 paragraph (1), the phrase "in whole or in substantial part" is included. Regarding the aspect of "in whole," it is quite clear, meaning it covers the entire creation, while "substantial part" refers to the most important and distinctive part that characterizes the creation. The provision regarding the most important and distinctive part certainly has a very broad meaning, leading to some ambiguity when correlated with artistic images used in Generative Artificial Intelligence training data. This is because an image encompasses several aspects, such as motifs, diagrams, sketches, logos, color elements, and decorative fonts. Additionally, there is a phrase about the legitimate interests of the creator or copyright holder. This can be understood as interests based on a balance in enjoying the economic benefits of a creation. Therefore, the provision in this article, besides being restrictive, also focuses on maintaining exclusive rights, particularly economic rights.

Furthermore, it can be reviewed based on the regulation concerning the reproduction of computer programs as stated in Article 45 of Law Number 28 of 2014 on Copyright. Reproduction of a computer program can be done for a single copy or adaptation of the computer program and must be carried out by an authorized user. However, it can be done without the creator's or copyright holder's permission if the copy is used for research and development of the computer program, as well as for archiving or backup of the computer program lawfully acquired to prevent loss, damage, or inoperability. Once the use of the computer program has concluded, any

copies or adaptations of the program must be destroyed. However, the use of artistic creations in the form of images in Generative Artificial Intelligence cannot fully adopt the approach of computer programs as defined in the Copyright Law if reproduction in its training data system presents legal issues due to the inclusion of elements that undeniably contain copyrighted creations.

Further provisions, based on Article 49 paragraph 1 letter (a), also regulate that temporary reproduction of a creation is not considered a copyright infringement under the following conditions when digital transmission or creation of a creation is carried out digitally in storage media; when performed by anyone with the creator's permission to transmit the creation; and when using a device equipped with an automatic copy deletion mechanism that prevents the creation from being displayed again. The use of artistic images in the training data for Generative Artificial Intelligence can essentially be correlated with the provisions regarding temporary reproduction. Therefore, the storage in the training data should be temporary in nature.

The implementation of this provision must also ensure that the system developed by Generative Artificial Intelligence does not produce an artwork that is similar to the various Artistic Image Works contained in its training data. However, it should be noted that there are no further regulations regarding how long a copy of a creation resulting from temporary reproduction can be stored in digital storage before automatic deletion of the copy occurs. The form of copies created temporarily during the training process can be used by the court to consider the interpretation of the rules on temporary copying (Guadamuz, 2024 : 117). However, ultimately, the organizers of Generative Artificial Intelligence, as the parties developing the system, have a better understanding of the nature of these copies, and in practice, this is rarely known to the public.

Thirdly, when reviewed based on the aspect of Fair Use, it essentially emphasizes that there is an exception for the use of creations, underlining an economic principle that should not be exploited arbitrarily by anyone. Therefore, the form and nature of a creation bound by copyright cannot be altered, and the interests of the copyright holder must not be violated. However, Law No. 28 of 2014 on Copyright does not explicitly regulate what constitutes fair use. The first provision, based on Article 43 of the Copyright Law, essentially sets limits on actions that are not considered copyright infringements. The second provision, based on Article 44 paragraph (1), states that the use, extraction, reproduction, or modification of a creation and/or related rights product does not violate copyright as long as the source is fully cited and for specific purposes.

The use of training data in the development of AI-based artwork must adhere to the fair use principle by producing works that are substantial and distinct from the original, thus not merely reproducing specific elements. Transparency regarding the training data source becomes a crucial aspect in representing the origin of the artistic creation used and providing a clear mechanism to handle copyright infringement claims. Efforts should be made to ensure that a work generated by AI does not harm the market or reduce the economic value of the original work, maintaining a balance between technological innovation and copyright protection, while respecting the moral and economic rights of the creator. However, the regulation regarding the formulation of the creator's fair interests in this case is limited and must ensure the proper citation of the original source. Currently, however, various Artificial Intelligence systems do not even disclose the source of the data, nor do they specify whose works are included.

Legal Regulation Based on Singapore's Copyright Law

In reviewing the discussion regarding creations in the form of images and correlating it with the Singapore Copyright Act 2021, the provisions are based on Article 20. As stated in Article 20 paragraph (1) of the Singapore Copyright Act, an "artistic work" refers to the creation of the creator, including paintings, sculptures, drawings, engravings, or photographs (whether or not the work has artistic quality), a building or model of a building (whether or not the building or model has artistic quality), and a work of artistic craftsmanship. Therefore, in alignment with Indonesia's Copyright Law, according to Article 146 of the Singapore Copyright Act, anyone who performs acts on works protected by copyright without proper authorization can be considered to have infringed upon the copyright of a work.

Essentially, Artificial Intelligence operates by integrating data, algorithms, and powerful computational data analysis (Jumantoro et al., 2024 : 59). A key change is the addition of a new exception to copyright infringement, allowing the use of works for Text and Data Mining (TDM) or data mining through computational data analysis, which is identical to TDM (D. Tan & Seng, 2021 : 1055). This exception can be viewed as a significant catalyst for enhancing the availability of data for Text and Data Mining (TDM), while also facilitating access to valuable training datasets for Artificial Intelligence programs. However, the Singapore Copyright Act also regulates fair use, which is considered when determining whether the use of a copyrighted work can be categorized as a legally permitted use without infringing on the copyright holder's

rights. The assessment of such use is based on several factors, such as the purpose of the use, the nature of the use, and its impact on the market for the work in question.

To gain a better understanding of the Singapore Copyright Act 2021, a comparison can be made and further explained to assess its relevance to Indonesia's Copyright Law. **First**, in reviewing the provisions that regulate the use of copyrighted works, the Singapore Copyright Act 2021 also provides detailed regulations. This can be found in Part 5: Permitted Uses of Copyright Works and Protected Performances. The regulation regarding permitted use that does not constitute copyright infringement includes two aspects. In this case, Article 183 paragraph (1) stipulates that if an action related to a creation is a permitted use, the action is not considered an infringement of the copyright in that creation. Furthermore, Article 183 paragraph (2) regulates that if an action related to a protected performance is a permitted use, the action is not considered an infringement of the performance.

The next provisions include Article 185, which regulates the permissible limits of use in the context of copyright and the protection of performances, Article 187 about Permitted Use that Cannot Be Excluded or Restricted, and Article 204 about the Use of Materials Available on the Internet for Educational Purposes. An interesting aspect is that according to Article 187 of the Singapore Copyright Act 2021, any contractual provision that seeks, directly or indirectly, to exclude or limit the permitted use under certain provisions is void by law. Such provisions include Computer Programs and Computational Data Analysis, meaning that the implementation of these provisions could imply that any organizer of Artificial Intelligence cannot impose restrictions through a specific contract and must comply with the provisions of the Copyright Act.

Secondly, unlike the Indonesian Copyright Act, which is more commonly referred to as Reproduction, the Singapore Copyrights Act 2021 is formulated with the term "Copying" in Division 3 Acts relating to works and performances Subdivision (2). The provisions in Article formulation found in Subdivision (2). Copying consists of 12 Articles that regulate the copying of works protected by copyright. However, when correlated with the context of using artistic works, such as images, in the training data of Generative Artificial Intelligence, it covers several provisions such as Article 41 about copies of the author's work, Article 49 about copies of works, including copies of substantial parts, and Article 50 about copies of works, including temporary or incidental copies. In this case, to reinforce this, the provisions in Article 41 of the Singapore Copyright Act 2021 can essentially be correlated with the issue of using

artistic works, such as images, in the training data of Artificial Intelligence. This is because, in principle, authorial work includes artistic work. Therefore, these provisions certainly provide a foundation for correlating with Computational Data Analysis in the Singapore Copyright Act.

Thirdly, the Singapore Copyright Act 2021, in Section 5 on Permitted Use of Copyrighted Works and Protected Performances, Division 2 regulates "Fair Use," which outlines provisions related to the fair use of works protected by copyright. As stated in Article 190, fair use is the permitted use. Therefore, there is a crucial aspect based on Article 191 as a guideline in determining whether the use is fair. This is because each provision in Sections 192, 193, and 194 is based on Article 191, so all relevant factors must be considered in deciding whether a work or performance is used fairly. These factors encompass the purpose and nature of the use, including whether it is for commercial or non-profit educational purposes; the type of work or performance involved; the extent and significance of the portion used in relation to the entire work or performance; and the impact of the use on the potential market or value of the work or performance.

Based on the shift from fair dealing, which was unrestricted, to fair use, the Singapore Copyright Act is preparing for the future to better address how the balance of copyright should be achieved between creators/copyright holders and users/the public. Through clear limitations on the fair use doctrine, which is at least adopted from the United States, where the Court is required to examine the purpose and character of the use. Therefore, Article 191 of the Singapore Copyright Act 2021 contains provisions with such formulation that restrictions can be categorized as the intent and nature of the use, including whether it is for commercial purposes or for non-profit educational objectives. Although there is no jurisprudence yet applying Article 191 in Singapore Courts, it is essential to consider whether the use is transformative as the most common reason for assessing fair use (Franceschelli & Musolesi, 2022 : 5).

Fourthly, unlike the Copyright Act of Indonesia, Article 244 of the Singapore Copyright Act 2021 provides an exception for the use of copyrighted works for Computational Data Analysis. This exception is not limited to non-commercial use of copyrighted works and cannot be restricted by contracts, and is formulated in such a way. In essence, this exception is separate from the provisions on fair use exceptions under the Copyright Act 2021. Division 8, Sections 243 and 244 of the Singapore Copyright Act 2021 specify that the authorized use allows for the creation of copies of

a copyrighted work or performance recording for "Computational Data Analysis." This includes using a computer program to identify, extract, and analyze information or data from the work or recording, as well as utilizing the work or recording as a sample to enhance the performance of a computer program in relation to that particular type of information or data.

The exception mechanism for Computational Data Analysis can be further reviewed in Article 244, which sets limitations for its application. First, the copies made can only be used for the purposes specified in the provisions of Division 8 — Computational Data Analysis. Second, users cannot provide these copies to others except for the purposes of "verifying the results of computational data analysis" and "collaborative research or studies related to the purpose of such analysis." Third, users must have lawful access to the copyrighted work they intend to use. Finally, it is expected that the first copy used in the analysis does not infringe copyright. However, the Singapore Copyright Act 2021 also provides an exception to anticipate situations where the user does not know, or have reason to know, the illegal nature of the copy used, or when the computational data analysis system uses a copy that infringes copyright.

Unlike the regulations regarding computer programs in the Indonesian Copyright Act, computational data analysis in the Singapore Copyright Act 2021 can be considered a derivative of the computer program system, which has more complex regulations. The Singapore Copyright Act 2021 provides a more comprehensive formulation of what is considered a computer program. This is based on the details of various forms of expression and processes that may occur, so this definition offers broader protection for different types of computer programs, further emphasized by the inclusion of computational data analysis. In contrast, the computer program in Law Number 28 of 2014 on Copyright in Indonesia is more general and focuses on the purpose or result that the computer program aims to achieve.

After understanding some comparisons between the Copyright Laws of Indonesia and Singapore, the author believes that follow-up actions are needed regarding the role of the Collective Management Organizations (CMOs) in each country. This is deemed necessary considering the widespread distribution of artistic works, such as images, and the possibility that the Creator or Copyright Holder may not know or realize that their work is being used in Artificial Intelligence training data. In practice, there is currently no Collective Management Organization directly responsible for visual art or images, either

in Indonesia or Singapore. In Indonesia, according to the Copyright Act, the focus is more on the field of songs and/or music, and there are at least 11 (eleven) legal organizations in this area. In contrast, Singapore recognizes at least 4 (four) Collective Management Organizations that handle composers and lyricists; record labels; creator's and book publishers; and film and audio-visual programs.

Looking at the current situation and its development, the Ministry of Law and Human Rights of the Republic of Indonesia has responded to the development of Artificial Intelligence by issuing Minister of Law and Human Rights Regulation No. 15 of 2024 on the Management of Royalties for Secondary Use Licenses for Copyrighted Books and/or Other Written Works. Through this regulation, there is sensitivity to the challenges currently present, and artificial intelligence developers are included in the category of Secondary Users. In this context, Secondary Users, as defined in Article 1, number 11, are users of Creations who engage in further utilization in the form of reproduction and/or distribution of published Books and/or Other Written Works, whether commercial or non-commercial, that harm the legitimate interests of the Creator and/or Copyright Holder of the Books and/or Other Written Works.

The existence of Secondary Users in Minister of Law and Human Rights Regulation No. 15 of 2024 includes Artificial Intelligence organizers as parties that are required to pay royalties for the secondary use of books and/or other written works through Collective Management Organizations, as stipulated in Article 17. This is implemented considering that when using copyrighted works as training data, Artificial Intelligence organizers engage in activities such as scanning, internet downloading, and large-scale data extraction from works on the internet (web scraping), as outlined in Article 18, paragraph (1) of Minister of Law and Human Rights Regulation No. 15 of 2024. Based on the Minister of Law and Human Rights Regulation, Secondary Users are defined as users of Creations who engage in further utilization in the form of reproduction and/or distribution of published Books and/or Other Written Works, whether commercial or non-commercial, that harm the legitimate interests of the Creator and/or Copyright Holder of the Books and/or Other Written Works.

Therefore, with the development of regulations to address the challenges posed by Artificial Intelligence, which threatens visual art works in training data that will inevitably result in works that resemble the originals, it is appropriate to consider reformulating the regulation of the Copyright Act. This is certainly to ensure that every training data used in Artificial Intelligence is obtained legally. Therefore, it is appropriate to provide clarity by

considering the concepts of Secondary Users, Secondary Use, and the mechanism for paying compensation/royalties, so that this can be done without the need to obtain prior permission from the Creator and/or Copyright Holder, given that the various images used may belong to different parties.

The government needs to consider that some current provisions have their own weaknesses if forced to be correlated with the use of artistic works, such as images, in Artificial Intelligence training data. Given that the concept of Reproduction within the framework of the Singapore Copyright Act 2021 is interrelated, especially with the help of the exception for Computational Data Analysis in Division 8. Therefore, Artificial Intelligence organizers must meet the requirements of Article 244, paragraph (2) if they do not want to be considered in violation of copyright. The addition of provisions related to Computational Data Analysis can be seen as crucial, considering the limitations of the current provisions regarding Computer Programs and the Reproduction of Computer Programs, which certainly have issues when applied to Artificial Intelligence training data. This is because Computational Data Analysis runs on a Computer Program system, so the Indonesian Copyright Act needs to consider an exception for Computational Data Analysis.

The concept of Reproduction in the future also needs to consider the addition of regulations related to Secondary Use, especially since the use of Creations for Artificial Intelligence training data can be considered as Reproduction. If used for commercial purposes, it is deemed Commercial Use. This is different if the Artificial Intelligence organizer is provided with a mechanism to pay royalties for using economic rights, so no permission is needed from the creator, and commercialization is possible, as long as the works produced by the Artificial Intelligence are not distinctive and personal like the works in the training data. Therefore, the certainty of Temporary Reproduction is also important to accommodate and ensure that the training data includes a mechanism for automatic deletion of copies that would prevent the Creation from being displayed again.

4. CONCLUSION

Based on the comparison of the Copyright Laws of both countries, there are currently no clear regulations regarding the use of Artistic Image Works in AI training data under Indonesia's Law Number 28 of 2014 on Copyright. In contrast, the Singapore Copyright Act 2021 has addressed the use of Artistic Image Works in AI training data through provisions on Fair Use in Articles 190 to 191 and Computational Data Analysis in Articles 243 to 244. Therefore, several criteria should be considered to determine the legality of

using Artistic Image Works in AI training data, such as from the perspectives of use, reproduction, fair use, and computational data analysis.

Efforts to develop Indonesia's Copyright Law in facing the challenges of the use of Artistic Image Works in AI training data should consider a comparative approach with the regulations of the Singapore Copyright Act. This includes considerations related to computational data analysis and fair use, which can be emphasized and adjusted to align with how the law addresses the development of AI in a way that does not harm the Creator or Copyright Holder. Furthermore, this can be followed by the establishment of a Collective Management Organization that handles Artistic Image Works for Secondary Use to accommodate Commercial Use.

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