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Copyright Protection for Works Created by AI Technology under the EU Law and Vietnamese Law

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Abstract: The legislation of the European Union increasingly focuses on expanding the scope of works protected by intellectual property rights, including literary works, music, films, and phonograms. The breakthrough in artificial intelligence (AI) has contributed significantly to creating works of art with little or no human intervention. The article examines the current situation of EU copyright law and Vietnamese law regarding AI-generated works. The article concludes that EU law governs copyright for these works based on the extent of human contribution to the creation of the work. Meanwhile, Vietnamese law still needs to resolve the issue of intellectual property rights for works created by AI.

1. Introduction

In May 2016, the European Parliament recommended that

> Robotics and AI have become one of the most prominent technological trends of our century. The fast increase of their use and development brings new and difficult challenges to our society. [...] It is crucial that regulation provides predictable and sufficiently clear conditions to incentivise European innovation in the area of robotics and AI.[1]

[1] European Parliament (2016), "Committee on Legal Affairs, Draft report with recommendations to the Commission on Civil Law Rules on Robotics, 2015/2103(INL)", p. 20, accessed February 25, 2023, https://www.europarl.europa.eu/doceo/document/JURI-PR-582443_EN.pdf.

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In their Resolution of 16 February 2017, the Members of the European Parliament called for a resolution to whether existing intellectual property law should be applied and how it should be changed to conform to advances in artificial intelligence. "Humankind stands on the threshold of an era when ever more sophisticated robots, bots, androids and other manifestations of artificial intelligence ('AI') seem poised to unleash a new industrial revolution."[2] Parliament declares that it is a "calling". The Commission supports a horizontal and technology-neutral approach to intellectual property applied to different fields.[3]

Thus, copyright protection for works created by AI is one of the new challenges that need to be discussed and solved worldwide in general and in the European Union.

In Vietnam, the law on intellectual property does not regulate these issues. This will be a considerable challenge, affecting the development of AI research and application in Vietnam in the coming time.

2. AI and Problems for Copyright Law

AI was officially born in the 1950s when researchers first began understanding how machines could simulate aspects of human intelligence. The most crucial moment starts with Alan Turing's "Computing Machinery and Intelligence,"[4] which explores many of the fundamentals of AI, including how intelligence can be tested and how machines can be programmed to self-learning.[5]

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2 European Parliament (2017), "European Parliament resolution of 16 February 2017 with recommendations to the Commission on Civil Law Rules on Robotics. Procedure reference: 2015/2103(INL)", Document reference: P8_TA-PROV(2017)0051, p. 1, accessed February 25, 2023, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52017IP0051&rid=1.

3 European Parliament (2017), "European Parliament resolution of 16 February 2017 with recommendations to the Commission on Civil Law Rules on Robotics. Procedure reference: 2015/2103(INL)", Document reference: P8_TA-PROV(2017)0051, p. 9, accessed February 25, 2023, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX-:52017IP0051&rid=1.

4 Alan M. Turing, "Computing Machinery and Intelligence," *Mind* 59, no. 236 (October 1950), in Helene Margrethe Bøhler, "EU Copyright Protection of Works Created by Artificial Intelligence Systems" (master's thesis, The University of Bergen, 2017), 7.

5 Peter Stone et al., "Artificial Intelligence and Life in 2030: One Hundred Year Study on Artificial Intelligence: Report of the 2015–2016 Study Panel," Stanford University, 2016, p. 50.

AI is a field of science and a collection of computing technologies inspired by how humans use the nervous system and body to sense, learn, reason, grasp, and act.[6] AI research aims to simulate human intelligence so that computer programs can act and reason correctly, independently, and automatically. A system is considered independent when it can independently perform the assigned task without human guidance.

Even so, there has yet to be a general concept for AI. However, according to one of the widely accepted definitions of Nils J. Nilsson, "artificial intelligence is the activity aimed at making machines intelligent, and intelligence is the quality that enables an entity to become intelligent. Operating appropriately and foresight in its environment."[7]

Early AI systems could only create programs that fit a narrow range of functions, meaning that machines were programmed to act like humans, and programmers could directly control the outputs of the machine. Meanwhile, today's AI system can already foster innovative thinking and logical reasoning ability in the AI computer. It can be said that today's AI system can make a machine "think" for itself. Randomness and autonomy are integrated into AI systems and growing strongly, making the connection between humans and AI outputs increasingly declining. This development has made AI a matter of profound social impact. All major universities have departments dedicated to AI, and technology companies such as Apple, Facebook, Alphabet, IBM, and Microsoft are also boldly investing in exploring the application of AI.[8] Several events can illustrate the advancement of AI. For example, IBM's Watson program beat human competitors to win the *Jeopardy Challenge* 2011.[9] The Watson program was later successfully applied as a medical diagnosis tool. The AlphaGo program

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6 Ibid., 4.

7 Nils J. Nilsson, *The Quest for Artificial Intelligence: A History of Ideas and Achievements* (New York: Cambridge University Press, 2010), 13.

8 European Parliament (2017), "European Parliament resolution of 16 February 2017 with recommendations to the Commission on Civil Law Rules on Robotics. Procedure reference: 2015/2103(INL)", Document reference: P8_TA-PROV(2017)0051, p. 6, accessed February 25, 2023, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX-:52017IP0051&rid=1.

9 David A. Ferrucci, "Introduction to 'This is Watson,'" *IBM Journal of Research and Development* 56, no. 3.4 (2012): 1:1–1:15.

defeated a chess champion in Go, one of the most complex and intellectually demanding games.[10]

AI continues to advance in the field of creativity. For example, Watson has collaborated with the Institute of Culinary Education to produce a cookbook titled *Get Cooking with Chef Watson*.[11] AI can also create a literary work; for example, in Japan, a short novel co-written by an AI program entered the literary competition and passed the first elimination round.[12] This proves that AI technology has come a long way in creating the content of literary works. The question is whether an AI-generated work deserves copyright protection.

3. EU Copyright Law Framework and Legal Precedents

3.1. EU Copyright Law Framework

The European Parliament has repeatedly mentioned the relevance of AI and copyright. The European Parliament resolution of 16 February 2017 with recommendations to the Commission on Civil Code Rules for Robots states: "There is no legal provision specifically possible for robotics, but… existing doctrines and legal regimes can easily be applied to robotics, although some aspects seem to require specific consideration."[13] A study by the European Parliament's Committee on Legal Affairs also highlighted in the October 2016 report: "the question that European policymakers might want to consider relates to the status of a robot's own creations. (…) Can an autonomous robot be deemed the author of an intellectual work, entitling it to copyright

10 David Silver, "Mastering the Game of Go with Deep Neural Networks and Tree Search," *Nature*, no. 529 (2016), 484–9, accessed February 25, 2023, http://www.nature.com/nature/journal/v529/n7587/full/nature16961.html.

11 Richard Brandt, "Chef Watson Has Arrived and Is Ready to Help You Cook," 2016, accessed February 25, 2023, https://www.ibm.com/blogs/watson/2016/01/chef-watson-has-arrived-and- is ready-to-help-you-cook/.

12 Michael Schaub, "Is the Future Award-Winning Novelist a Writing Robot?," *Los Angeles Times*, March 22, 2016, accessed February 25, 2023, https://www.latimes.com/books/jacketcopy/la-et-jc-novel-computer-writing-japan-20160322-story.html.

13 European Parliament (2017), "European Parliament resolution of 16 February 2017 with recommendations to the Commission on Civil Law Rules on Robotics. Procedure reference: 2015/2103(INL)", Document reference: P8_TA-PROV(2017)0051, p. 9, accessed February 25, 2023, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52017IP0051&rid=1.

protection?"[14] Thus, the reports acknowledge the relevance and importance of copyright issues for AI-generated works. However, they need to provide an answer as to whether the current EU law is valid. Protect works created by AI. The answer will lie in looking at the EU's legal framework regarding copyright protection.

The EU's legal framework for copyright includes directives applicable to all Member States to harmonise the rights of authors, performers, producers, and broadcasters. These directives reflect the obligations of Member States to comply with the Berne Convention, the Rome Convention, the TRIPS Agreement, the WCT, and the WPPT. Necessary directives in this area include Information Society Directive 29/2001/EC (InfoSoc),[15] Software Directive 2009/24/EC (Software Directive),[16] Database Directive 96/9/EC,[17] and the Copyright Term Directive 2006/116/EC.[18]

The above directives highlight two issues in the EU's copyright legal framework as follows. First, Europe recognises the role of copyright protection in the traditional approach. The traditional approach accepts intellectual property rights to promote and encourage cultural and

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14 European Parliament, Policy Department C for Citizens' Rights and Constitutional Affairs (2016), *European Civil Law Rules in Robotics*, PE 571.379, accessed February 25, 2023, https://www.europarl.europa.eu/RegData/etudes/STUD/2016/571379/IPOL_STU(2016)571379_EN.pdf.

15 European Parliament (2001), "Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society," accessed February 25, 2023, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32001L0029.

16 European Parliament (2009), "Directive 2009/24/EC of the European Parliament and of the Council of 23 April 2009 on the legal protection of computer programs," accessed February 25, 2023, https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX-%3A32009L0024.

17 European Parliament (1996), "Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases," accessed February 25, 2023, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A31996L0009.

18 European Parliament (2006), "Directive 2006/116/EC of the European Parliament and of the Council of 12 December 2006 on the term of protection of copyright and certain related rights," accessed February 25, 2023, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32006L0116&qid=1677478100672.

technological development.[19] Essentially, exclusive rights provide the author with a financial return to compensate for the author's investment in creating the work.[20] Without copyright protection, others can freely benefit from the creator's efforts and thus stifle the development of the authors. Accordingly, a flawed copyright regime would discourage future investment in artistic and creative works.[21] These considerations are outlined in the InfoSoc Directive 2001/29/EC preamble: "The investment required to produce [innovative] products… is considerable. Adequate legal protection of intellectual property rights is necessary in order to guarantee the availability of such a reward and provide the opportunity for satisfactory returns on this investment."

Besides the financial aspect, copyright also aims to reward creativity, stimulating investment in the creative sector.[22] The preamble to the Infosoc Directive 2001/29/EC defines:

> [a] harmonised legal framework on copyright and related rights, through increased legal certainty and while providing for a high level of protection of intellectual property, will foster substantial investment in creativity and innovation, including network infrastructure, and lead in turn to growth and increased competitiveness of European industry, both in the area of content provision and information technology and more generally across a wide range of industrial and cultural sectors. This will safeguard employment and encourage new job creation.

Thus, the EU's copyright policy is the traditional one aimed at maintaining the economic engine for expressing valuable ideas and promoting scientific and cultural development. Study the arts, and at the same time,

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19 This is emphasized in the preamble to Infosoc Directive 2001/29/EC and in the preamble to the WIPO Copyright Treaty.

20 Annette Kur and Thomas Dreier, *European Intellectual Property Law* (Publishing House. Oxford, 2013), 241–2.

21 OECD (2015), "Enquiries into Intellectual Property's Economic Impact," 217, accessed February 25, 2023, https://web-archive.oecd.org/2016-03-21/369774-intellectual-property-economic-impact.htm.

22 European Commission (2016), "Copyright", accessed February 25, 2023, https://ec.europa.eu/digital-single-market/en/copyright.

ensure the right of society to access knowledge.[23] This formed the basis for today's European copyright framework.

Second, Europe recognises standards for copyright protection of work based on compliance with the Berne Convention. The Berne Convention requires that a work to be protected must be "original" and "creative."[24] The EU legislature addresses the requirement for originality and inventiveness in three directives: Article 1 (3) and Article 3 (1) of the Software Directive 91/250/EC, the Database Directive 96/9/EC, and Article 6 of the Copyright Term Directive 2006/116/EC. All three of these directives require that to be protected, a work must be original because it is "the author's own intellectual creation."

The above legal framework shows that the consideration of whether an AI-generated work is protected by copyright in the EU will be made based on the EU's approach to copyright and according to the standards of the EU. These criteria are illustrated in CJEU precedents.

3.2. Concept of a Work According to EU Law

The concept of a "work" has been recognised by the CJEU as an autonomous and harmonised concept of EU law, which must be interpreted and applied uniformly and requires two conditions to be met: (1) it must be "original". "Original" means that it reflects the author's personality as an expression of the author's free and creative choices. Suppose the topic is dictated by technical considerations, rules, or other constraints, with no room for creative freedom. In that case, the case will not be considered "original"; (2) it must be determined with sufficient accuracy and objectivity.[25]

This may have certain complications in representing the author's free and creative choice if AI powers the work. What types of options are considered relevant in generating AI-powered outcomes? And so can the uniqueness requirement be met when considering the role of AI systems in creating

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23 Timothy Butler, "Can a Computer be an Author – Copyright Aspects of Artificial Intelligence," *Hastings Communications and Entertainment Law Journal* 4, no. 4 (1981): 735.

24 World Intellectual Property Organization, *WIPO Intellectual Property Handbook: Policy, Law and Use*, 2nd ed. (Geneva, Switzerland: World Intellectual Property Organization, 2004), para. 5.171, https://tind.wipo.int/record/28661.

25 CJEU Judgment of 12 September 2019, Cofemel – Sociedade de Vestuário SA v. G-Star Raw CV, Case C-683/17, paras. 29–32.

AI-powered products. Whether and to what extent an AI-generated work qualifies as a copyrighted work.

3.3. CJEU's Precedents

The first precedent is the dispute involving Infopaq. Infopaq is a company that collects data from various Danish articles, then compiles abstracts of articles and sends them by e-mail to its customers. Disputes arose around whether Infopaq needed the consent of the owners of the articles before copying them to be sent to customers.

Statement of the CJEU regarding the interpretation of Article 2(a), Infosoc Directive 2001/29/EC. Article 2(a) provides that authors have the exclusive right to permit or prohibit the reproduction of their "works." The CJEU considers that the interpretation of a "work" should be made by Article 2 of the Berne Convention. In addition to the reference to Article 1(3) of the Software Directive 91/250/EC, Article 3(1) of the Database Directive 96/9/EC, and Article 6 of the Copyright Term Directive 2006/116/ EC, the CJEU states that Article 2(a) of the Infosoc Directive 2001/29/EC provides that a work is protected by copyright when it is original, "the author's own intellectual creation."[26] The CJEU has fully harmonised the requirement for originality at the EU level. Besides, the CJEU attaches great importance to the intellectual act of selecting and arranging text passages.

> Regarding the elements of such works covered by the protection, it should be observed that they consist of words which, considered in isolation, are not as such an intellectual creation of the author who employs them. It is only through the choice, sequence and combination of those words that the author may express his creativity in an original manner and achieve a result which is an intellectual creation.[27]

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[26] CJEU Judgment of 16 July 2009, Infopaq International v. Danske Dagblades Forening, Case C-5/08, ECR I-6569, para. 37, accessed February 25, 2023, https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:62008CJ0005.

[27] CJEU Judgment of 16 July 2009, Infopaq International v. Danske Dagblades Forening, Case C-5/08, ECR I-6569, para. 45, accessed February 25, 2023, https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:62008CJ0005.

Thus, the creators of the articles have made a series of creative choices that render the original texts in the sense that they are "the author's own intellectual creation." Thus, Infopaq needs the consent of the article owners before copying them to send to customers.

The second precedent was the Painter dispute.[28] One of the questions was whether a photograph could be published in magazines and on the Internet without the owner's consent. In particular, the Court clarified whether the "original" photograph standard in Article 6 of the Copyright Term Directive 2006/116/EC includes portraits. The Court has clearly stated that the criterion for judging whether a work is considered an "author's own intellectual creation" lies in the fact that the author can "make free and creative choices in several ways and at various points in its production." Furthermore, by making these different choices, the author of a portrait can put his or her stamp on the work created. The Court then illustrated such creative choices:

> In the preparation phase, the photographer can choose the background, the subject's pose and the lighting. When taking a portrait photograph, he can choose the framing, the angle of view and the atmosphere created. Finally, when selecting the snapshot, the photographer may choose from a variety of developing techniques the one he wishes to adopt or, where appropriate, use computer software.[29]

Thus, according to CJEU, a portrait photo is protected by copyright.

In the third precedent, the creative criterion was made more evident in the Murphy dispute,[30] in which the CJEU looked at whether copyright issues were raised in sporting events. In this regard, the CJEU clarifies that

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28 CJEU Judgment of 12 April 2011, Painter v. Standard VerlagsGmBH and Others, Case 145/10, ECR I-0000, para. 88, accessed February 25, 2023, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A62010CC0145&qid=1677413626381.

29 CJEU Judgment of 12 April 2011, Painter v. Standard VerlagsGmBH and Others, Case 145/10, ECR I-0000, para. 91, accessed February 25, 2023, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A62010CC0145&qid=1677413626381.

30 CJEU Judgment of 4 October 2011, Football Association Premier League Ltd and Others v. QC Leisure and Others, and Karen Murphy v. Media Protection Services Ltd, Cases C-403/08 and C-429/08, ECR I-10909, para. 98, accessed February 25, 2023, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A62008CJ0403&qid=1677413726129.

about the process of "author's own intellectual creation," there must be "creative freedom for the purposes of copyright." The Court concluded that since football matches are subject to the game's rules, they have no room for such creative freedom and cannot be copyrighted. The statement implies that a work is considered original only if it results from creative freedom. Game rules in sporting events are not credited to the author's creative freedom or protection.

The decision in the Infopaq, Painter, and Murphy disputes clarified and developed the EU's concept of originality and inventiveness. The "author's own intellectual creation" is the criterion for the claim of originality. The author has made a "free and creative choice" and expresses a personal impact on the creative process.[31]

Even so, the EU legal framework and CJEU precedents have yet to adequately explain whether an AI-generated work meets the requirements of originality and inventiveness for protection.

4. Ability to Protect AI-Generated Works under EU Copyright Law

The creative process associated with AI works fundamentally differs from the creative process that traditional copyright intends to protect. In the traditional creative process, people contribute and connect with the work. In the creative process of AI, human contribution and connection to the work do not always happen. Whether an AI-generated work is eligible for copyright protection under applicable EU law is decided based on distinctions in the following cases of creation: (1) works created by humans in collaboration with AI, and (2) a work created by AI but based on human selection to approve a final version before being released to the public, and (3) a work completely AI-generated and with little or no human intervention.

4.1. Works Created by Humans in Collaboration with AI

In this case, humans can use AI as a tool in the process of creating a work. Even if AI plays a vital role in creating a work, human input will subject the work to copyright rules, including originality and inventiveness.[32] As

31 Eleonora Rosati, *Originality in EU Copyright: Full Harmonization through Case Law* (Cheltenham, Northampton: Edward Elgar Publishing, 2013), 187.

32 Bøhler, "EU Copyright Protection," 7.

analysed above, "his computer is just a tool to translate inner creativity or ideas into an external embodiment."[33] Thus, AI generation is used as a tool in the human creative process and is acceptable for copyright. In this case, the work will be protected by copyright under EU copyright regulations.

4.2. Artwork Created by AI, Based on Human Choice

In this case, even though the AI generates the work, the human has an essential contribution in choosing which part/work among the generated works is valuable and worthy of publication. Examples of AI creating works by human choice can be found in the music industry.[34] So far, the algorithms need to be more accurate; therefore, the AI cannot judge how attractive each piece of music is. This often requires the AI to manipulate composition many times to create a successful composition. In this process, people must evaluate the pieces generated to determine which parts are valuable and worthy of distribution and which should not be kept. The essential human contribution lies simply in choice. The question is whether this mere choice gives humans copyright over AI-generated work. In other words, does the behaviour of human choice have any meaning in creating a copyright? "It is only through the choice, sequence and combination of those words that the author may express his creativity in an original manner and achieve a result which is an intellectual creation." This quote demonstrates that the CJEU considers the act of selection and placement to be intellectual, reflecting the creativity required by the Copyright Term Directive 2006/116/EC. The human choice in deciding whether to keep the AI-generated work constitutes an intellectual act on the work. In this case, the person making the selection decision will have the intellectual property rights to the work.

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33 Burkhard Schafer et al., "A Fourth Law of Robotics? Copyright and the Law and Ethics of Machine Co-production," *Artificial Intelligence and Law* 23, no. 3 (2015): 223.

34 The Flow Machines research project, funded by the European Research Council (ERC) and coordinated by François Pachet (Sony CSL Paris - UMPC), accessed February 25, 2023, http://www.flow-machines.com/.

4.3. Works Created and Selected by AI

AI technology has grown so much that AI can write short news stories or produce music clips. An automated AI system can generate hundreds or even millions of works for a single request, and the system selects the works it deems appropriate. This removed the link between AI and humans in the creative process.[35] The role of the user of the AI program has been reduced to the point of being only the person who initiates the AI system, for example, by entering the word "compose" in a composer or word "processor." In the absence of any human intervention regarding the creativity of the output work, the question arises as to whether copyright is applicable under current EU regulations. It can be seen that according to the CJEU precedents, the concept of "author's own intellectual creation" does not lie in the work created but in the process of creating the work. Thus, the whole process must be considered as to whether a work is creative. The CJEU's assertion in the precedents may suggest that it is necessary to establish the existence of freedom in the production process to consider a piece original under EU copyright law. A product created entirely by AI that does not involve conscious human choices will not be eligible for protection under applicable EU law. The assessment of whether a work is protected will be based on the process leading up to the work rather than on the final work.

This conclusion is also consistent with the EU copyright law framework in general. The basis of EU copyright law will be based on the author's identity. For example, Article 1 of the Copyright Term Directive 2006/116/EC defines the term protection based on the author's death[36] (also Article 7.1 of the Berne Convention). These terms are based on the assumption that the "author" is a person likely to die, implying that an artificial entity cannot be considered an author of a work from the copyright perspective.[37]

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35 Schafer et al., "A Fourth Law of Robotics?," 225.

36 Article 7.1 of the Berne Convention provides that the term of protection granted by this Convention shall be for the author's lifetime and fifty years after the author's death. Article 1 of the directive provides that the author's rights of a literary or artistic work within the meaning of Article 2 of the Berne Convention shall be for the author's life and seventy years after the author's death.

37 Ralph D. Clifford, "Intellectual Property in the Era of the Creative Computer Program: Will the True Creator Please Stand Up?," *Tulane Law Review*, no. 71 (1675): 1683.

5. Vietnamese Law on Copyright Protection for Works Created by AI

5.1. Overview of Vietnam's Copyright Legal System

In Vietnam, AI has begun to be developed and applied in many different fields and is seen as an essential driving force for the direction of socio-economic development. For example, research works, products and entities associated with AI appear increasingly. The government has identified AI as a disruptive technology in the next ten years. At the same time, it is determined that this will be a "spike" that needs to be researched to take advantage of the opportunities brought by the Fourth Industrial Revolution. The government has also developed a national strategy for Industry 4.0, prioritising AI development through multiple policy groups. In particular, human resources are prioritised, such as university-level AI training, supporting the AI application business sector, and prioritising investment in AI through funds and innovation centres.

However, similar to many countries, the legal system still needs a straightforward approach to AI in addition to AI development policies. In other words, no specific regulation defines AI's legal status when participating in social relations regulated by law.

Civil law in Vietnam stipulates that the subject must be an individual or an organisation (COL, 2015). However, it has yet to identify the subject as a machine or computer program, so it will be impossible to determine the legal status. The logic of AI is subject to the law.

The Law on Intellectual Property of Vietnam (latest revised in 2022) also does not have regulations on artificial intelligence. Article 13 of the Law on Intellectual Property provides for copyright holders, including:

> Vietnamese organizations and individuals; a foreign organization or individual whose work is published for the first time in Vietnam but has not been published in any other country or is simultaneously published in Vietnam within thirty days from the date on which the work is published that is published for the first time in another country; foreign organizations and individuals whose works are protected in Vietnam under the international copyright convention to which Vietnam is a contracting party[38].

[38] The 2005 Intellectual Property Law (amended and supplemented in 2009, 2019, and 2022).

Realising the importance of promoting artificial intelligence, on January 26, 2021, the Prime Minister issued Decision No. 127/QD-TTg promulgating the National Strategy for Research and Development of Artificial Intelligence Applications by 2030. Combined with the 2008 High Technology Law, this strategy has become a legal framework to help Vietnam promote AI development. However, current Vietnamese intellectual property laws still cannot resolve the issue of copyright for works created by AI (including Intellectual Property Law No. 50/2005/QH11 in effect from July 1, 2006; Law No. 36/2009/QH12 of the National Assembly amending and supplementing several articles of the Intellectual Property Law effective from January 1, 2010; Law No. 42/2019/QH14 of the National Assembly amending and supplementing several articles of the Law on Insurance Business and the Law on Intellectual Property, effective from November 1, 2019; Law No. 07/2022/QH15 of the National Assembly amending, supplementing several articles of the Intellectual Property Law, effective from January 1, 2023).

5.2. Definition of Author and Works

Article 12a of the 2005 Intellectual Property Law (amended and supplemented in 2009, 2019, and 2022) stipulates authors and co-authors as follows:

1. The author is the person who directly creates the work. In cases where two or more people now make a work with the intention that their contributions are combined into a complete whole, they are co-authors.
2. A person who supports, comments, or provides materials for others to create a work is not the author or co-author.
3. The co-authors must agree upon the exercise of moral and property rights for works with co-authors, except in cases where the work has separate parts that can be separated and used independently without making any changes. Prejudicial to the shares of other co-authors or other laws have different provisions.

This regulation shows that the author of a work must generally be a natural "person," a biological person. In addition, this regulation also excludes the possibility of considering both humans and AI as "co-authors" of the work. This comes from the fact that co-authors must have "intentional" contributions to combine into a complete whole of the work.

The "intention" requirement is intended to affirm a person's will. AI systems are essentially just the operation of machines, so they cannot have an "intention."

The 2005 Intellectual Property Law (amended and supplemented in 2009, 2019, and 2022) stipulates that copyright comprises personal and property rights. Among them, moral rights include the following rights:

1. Right to name the work. The author has the right to transfer the right to name the work to the organisation or individual receiving the transfer of property rights according to the provisions of the Intellectual Property Law;
2. The right to put your real name or pseudonym on the work; to give the author's real name or pseudonym when the work is published or used;
3. The right to publish the work or allow others to publish the work;
4. The right to protect the integrity of the work to prevent others from distorting it; not allowing others to modify or deface the work in any form that harms the author's good name and reputation.

The Intellectual Property Law does not define what the word "personal" means. However, Article 5 of the 2014 Law on Civil Status stipulates that one of the principles of civil status registration is to "respect and ensure personal rights" and "all civil status events of an individual must be fully registered." In case of not meeting the conditions for civil status registration according to the provisions of law, the head of the civil status registration agency shall refuse in writing and clearly state the reason. Clause 2, Article 9 of the Law on Civil Status also stipulates:

> When carrying out civil status registration procedures and issuing copies of civil status extracts from the civil status database, individuals present documents proving their identity to the civil status agency, Civil registration office. Suppose the application is sent through the postal system. In that case, it must be accompanied by a certified copy of identification documents.

These regulations show that the "personality" factor is an element describing a natural person. AI is a mechanical system, not a natural human being, so it cannot have the element of "personality."

Article 8 of the 2005 Intellectual Property Law (amended and supplemented in 2009, 2019, and 2022) stipulates the state's policy on intellectual property as follows:

1. Recognising and protecting intellectual property rights of organisations and individuals to ensure a balance between the interests of intellectual property rights holders and public goods; Not protecting intellectual property objects contrary to social ethics, public order, or harmful to national defence and security.
2. Encouraging and promoting creative activities and exploiting intellectual property to contribute to socio-economic development and improve the material and spiritual life of the people.
3. Financial support for transferring and exploiting intellectual property rights to serve public interests; encouraging domestic and foreign organisations and individuals to sponsor creative activities and protect intellectual property rights.
4. Prioritising investment in training and fostering a team of officials, civil servants, public employees, and related subjects working to protect intellectual property rights and research and apply science and technology to protect intellectual property rights.
5. Mobilising social resources to invest in improving the capacity of the intellectual property rights protection system, meeting the requirements of socio-economic development and international economic integration.

Regulations on the state's policy on intellectual property rights for works do not directly affirm that the author must be a natural "human." However, set goals such as "encouraging," "promoting creativity," "financial support," and "mobilising resources" are incentives provided to people. AI systems are machines not suitable to achieve these goals and receive incentives. Only natural people are compatible with spiritual and material reasons.

In addition, the regulations on transferring intellectual property rights in the Intellectual Property Law show that only a natural person can carry out transfer activities. These activities can only be carried out by entering into and implementing contracts. A mechanical system lacking

the freedom of will, unity between choice and will expression, cannot be a party to the transfer of copyright.

5.3. The Protection Conditions and Duration of Protection of Works

Clause 1, Article 6 of Intellectual Property Law (amended and supplemented in 2009, 2019, and 2022) stipulates the basis for arising and establishing intellectual property rights as follows: copyright rights derive from the date the work is created and expressed in a particular material form, regardless of content, quality, condition, medium, language, published or unpublished, registered or not registered. Thus, the Intellectual Property Law requirements show that a work must first be "created" for it to be protected.

However, the Intellectual Property Law and the guiding documents do not have specific instructions on what constitutes "creativity." Therefore, it will be tough to determine whether works created by AI are "creative" or not.

Meanwhile, Article 13 of Intellectual Property Law (amended and supplemented in 2009, 2019, and 2022) stipulates that an author is a person who directly creates part or all of a literary, artistic or scientific work. This regulation shows that if AI creates a work, any other entity (such as the owner of the AI system, programmer, or user...) cannot be the work's author because these subjects are not the ones who "directly" created part or all of the work.

Clause 7, Article 4 of the Vietnam Intellectual Property Law (amended and supplemented in 2009, 2019, and 2022) stipulates that a "work" is a "creative product in the fields of literature, art and science expressed in any means or form." Clause 3, Article 14 stipulates that protected works "must be directly created by the author using his or her own intellectual labour and not copied from the works of others." This regulation also excludes protection for works created by AI because this work is not "directly" made by humans.

Regarding the term of protection, Article 27 of Intellectual Property Law (amended and supplemented in 2009, 2019 and 2022) stipulates as follows:

1. The following moral rights are protected indefinitely, including (i) naming the work; (ii) putting your real name or pseudonym on the work; being given your real name or pseudonym when the work is

published or used; (ii) protecting the integrity of the work, not allowing others to edit, deface or distort the work in any form that is harmful to the author's good name and reputation.

2. The right to publish works or allow others to publish results and property rights are protected for a period as follows:
   (i) For cinematography, photography, or applied arts, anonymous works have a protection period of seventy-five years from when the work is first published. For works of cinematography, photography, or using skills that have not been published for twenty-five years from when the work was fixed, the term of protection is one hundred years from when the work was created;
   (ii) Works that do not fall into the categories specified above have a term of protection that is the entire life of the author and fifty years following the year of the author's death. In case a work has a co-author, the term of protection ends in the fiftieth year after the year the last co-author dies.

The provisions on the term of protection do not directly address the issue of whether a work created by AI is eligible for protection. However, the representation of security is based on "the author's lifetime" and a period from the author's death or the last author's death (in the case of co-authors), indicating that only the work created by humans qualifies for protection because only natural humans can die. An AI system does not have its own life, just as an AI system cannot die. This implicitly shows that this term of protection does not apply to works created by AI.

Thus, the current law stipulates that only organisations and individuals can be copyright holders; objects such as computers, robots, or AI cannot yet be granted copyright. Besides, up to now, the copyright registration agency has not received any copyright registration applications for works created by AI. Therefore, in Vietnam, there has not been any ruling by a competent People's Court related to resolving disputes over the protection of works created by AI.

It can be seen that Vietnam is not ready to protect work created by AI, regardless of the level of AI's contribution. To solve this problem, lawmakers need to reevaluate based on compatibility with Vietnam's social environment. Suppose the current legal framework for copyright protection

remains the same, specifically tailored to the author as a human being. In that case, AI-generated outputs will not be eligible for copyright protection.

6. Conclusions

Based on the EU copyright law system and CJEU precedents, copyright cannot be claimed in work created entirely by AI. As such, without a human being involved in the creative process, copyright will not protect the work.[39] Whether copyright can be claimed on AI-generated works depends on the extent of human contribution to the final product. Specifically, in the assessment of copyright under current regulations, there is a distinction between an AI user who is a real author and an AI user who creatively influences its output or selection.[40]

This conclusion is also consistent with the statement of the European Parliament that "existing legal regimes and doctrines can be readily applied to robotics, although some aspects appear to call for specific consideration."[41] The statement implies that the applicable copyright policy may, in most cases, be applied to AI-generated works, as subdivided according to the above cases.

Even so, this view is likely to change in the future. The Commission on Civil Law Rules on Robotics also emphasised that it is essential to encourage European innovation in robotics and AI:

> the European industry could benefit from an efficient, coherent and transparent approach to regulation at Union level, providing predictable and sufficiently clear conditions under which enterprises could develop applications and plan their business models on a European scale while ensuring that the Union and its Member States maintain control over the regulatory standards to be set, so as not to be forced to adopt and live with standards set by others, that

39 Bøhler, "EU copyright protection," 7.

40 James Grimmelmann, "There is No Such Thing as a Computer-Authored Work – And It is a Good Thing, Too," *Columbia Journal of Law & the Arts* 39, no. 403 (2015): 410.

41 European Parliament (2017), "European Parliament resolution of 16 February 2017 with recommendations to the Commission on Civil Law Rules on Robotics. Procedure reference: 2015/2103(INL)", Document reference: P8_TA-PROV(2017)0051, p. 9, accessed February 25, 2023, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52017IP0051.

is to say the third countries which are also at the forefront of the development of robotics and AI.[42]

Based on this, in the future, there may be an adjustment in copyright law at the EU level to ensure adaptation to the changes brought about by AI.

Although AI has not been attractive for a long time, with the available potential, AI will inevitably develop very quickly in Vietnam. It will bring enormous technological, economic, and social impacts. However, at the same time, it also entails new problems and legal challenges that require the legal system to be perfected. However, it can be affirmed that according to Vietnam's current intellectual property laws, it is difficult to claim protection for a work created by AI, regardless of the level of AI's contribution.

WIPO believes that by excluding AI-generated works from eligibility for copyright protection, the copyright system will be a tool to encourage and promote the dignity of human creativity. Human creativity versus machine creativity. Still, according to WIPO, if copyright protection is applied to works created by AI, the copyright system will be seen as a tool that facilitates large quantities of creative works and places equal value on humans and machines. However, in recent years, many countries have been making efforts to research and discuss issues and legal questions related to the use of AI to take advantage of the advantages brought by AI to the development of the economy. Economy. Therefore, it is required that legislators study and clearly define the legal status and nature of AI towards building a legal framework regulating legal relationships related to AI.

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