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MENDING THE AUTHORSHIP DILEMMA: ASSIGNING AUTHORSHIP RIGHTS TO AI-GENERATED WORKS

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By

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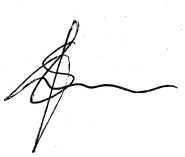
DECLARATION

I, **GEORGE PHILIP GUMBA**, do hereby declare that this research is my original work and that to the best of my knowledge and belief, it has not been previously, in its entirety or in part, been submitted to any other university for a degree or diploma. Other works cited or referred to are accordingly acknowledged.



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ANDREW WAITHUMBI NGURUMI

ABSTRACT

This study focuses on the analysis and determination of what would amount to necessary arrangements under the Copyright Act of Kenya to assess where authorship rights of AI-generated works fall

This study employed qualitative research that will emanate from secondary sources such as scholarly works and case law while examining relevant legal provisions. Through this research, the study has established that there is no clear definition as to what constitutes 'necessary arrangements'. While many authors have tried to dissect what this entails, when faced with these questions, the courts from jurisdictions such as the UK have adopted the approach of dealing with the matter on a case-by-case basis. In this instance, the court looks at the level of human involvement required to produce the work and sees where to grant the authorship rights. The study went on to draw lessons from Australia as well whose standard of originality in granting protection is much higher. The courts determined this standard to be upheld and that there must be direct human involvement in the production of AI-generated work.

Based on these findings, the research proposes recommendations for judges, legislators, the regulatory body of copyright in Kenya (KECOBO), parties who might generate copyrightable works through AI, and legal practitioners. These recommendations suggest that courts determine the question of authorship on a case-by-case basis by identifying the level of human involvement and how much was significant in the production of the work, and to accord a higher standard of originality in order to avoid mistakenly granting authorship rights.

The study further recommends that legislators consider clearly defining what computer-generated works are because that would cover AI-generated works as well. Furthermore, the act should be reviewed regularly in light of new technical developments. As AI systems grow more powerful and autonomous, and machine learning becomes more complex, the copyright protection of works created by AI will soon need to be evaluated.

LIST OF ABBREVIATIONS

AI - Artificial Intelligence

CDPA - Copyright, Designs and Patents Act (1988)

CONTU - National Commission on New Technological Uses of Copyrighted Works

KECOBO - Kenya Copyright Board

UK - United Kingdom

U.S - United States of America

LIST OF CASES

LIST OF LEGAL INSTRUMENTS

Copyright Act of Kenya (No. 12 of 2001) eKLR.

Copyright, Designs and Patents Act of the United Kingdom (1988) United Kingdom.

Copyright Act of Australia (1968) (Cth).

1.0. INTRODUCTION

1.1. Background

The current copyright law regime in Kenya seeks to ensure that those engaged in the creation of copyright-related works are protected through granting exclusive rights to persons deemed to be authors/owners/originators. The person responsible for creation of copyright related works benefits both morally and financially from the exploitation of the works.[1] This is achieved through exercise of exclusive rights granted to a person such as reproduction of the original work, adaptation or translation, distribution, and any other forms in which the owner may wish to broadcast the work to the public.[2] Some of the works eligible for such exclusive rights include literary, musical, artistic, dramatic, audio-visual works, sound recordings, and broadcasts.[3] For these works to be eligible for copyright, they must be original and the work has either been written down, recorded, or otherwise reduced to material form.[4]

The world is constantly developing, and with the growth of technology, various aspects within the field of copyright law regime have been put into question. An example would be the place of artificial intelligence in copyright law, more specifically authorship of AI-generated works. With the development and advancement of artificial intelligence, the question of authorship in AI-generated work is yet to be addressed, leaving the stance of copyright law in artificial intelligence (AI) to be a bit of a gray area. To address this, it is essential to understand how AI-generated works are generated and or created and the legal framework surrounding it.

Artificial intelligence is a rapidly developing field of technology that uses machines to mimic human intelligence and empower people to do a wide range of complex and basic jobs. This is often done through machine learning or deep learning which allows the machine to learn from the data it is fed. The evolution starts with low-level AI focused on certain applications, such as voice assistants. The ones that can be identified as strong AI, perform intellectual tasks capable of being performed by a human. While AI provides notable advancements, it raises a variety of

[1] WIPO, The Economic Contribution of Copyright-Based Industries in Kenya, March 2009, 10.
[2] Section 26, *Copyright Act* (No. 12 of 2001).
[3] Section 22, *Copyright Act* (No. 12 of 2001).
[4] Section 22, *Copyright Act* (No. 12 of 2001).

questions. A central question is whether works generated and or created using AI would be categorized as copyrightable works.

Some of the notable works created and or generated using AI are such as, first, Google provided funding for an AI system in 2017 so that it could produce local news pieces for the Press Association.[5] Second, the Next Rembrandt which is a new type of artwork created by artificial intelligence that was introduced in the Netherlands by a group of researchers after the artist, Rembrandt Harmenszoon van Rijn, had hundreds of his works studied.[6] Third, a Japanese computer program's short novel made it to the national literary prize semifinals. Fourth, DeepMind, an artificial intelligence startup owned by Google, has developed software that uses recordings to create and compose music. These are the various examples where artificial intelligence has been involved in making copyrightable work. This could have important consequences for the copyright law regime especially on the concept of authorship. Whenever Artificial Intelligence is involved in the production of copyrightable works; the question of authorship is raised. Authorship of AI-generated works is accorded to the person who made the arrangements necessary for the creation of that work, this could either be the programmer, the user, or the AI itself. The law does not clearly address this.

Two approaches are taken in order to assess this question. The first approach suggests that AI-generated works may not be protected at all, the second one awards authorship rights to the person who devised the arrangements necessary for the work's creation.

Since the program was only intended to assist in the creative process, copyright ownership of artwork created on a computer has never been an issue within the copyright law regime and especially with the concept of authorship. On the one hand, with AI's latest advancements, the software is no longer just a tool—rather, it now independently determines most creative process decisions, negating the need for human input. On the other hand, authorship within the copyright law regime is interpreted within the lens of a person, that is a natural person.[7] Additionally, to be

[5]<https://www.theguardian.com/technology/2017/jul/06/press-association-wins-google-grant-to-run-news-service-written-by-computers>
[6] <https://www.theguardian.com/artanddesign/2016/apr/05/new-rembrandt-to-be-unveiled-in-amsterdam>
[7] <https://www.wipo.int/wipo_magazine/en/2017/05/article_0003.html#:~:text=Creating%20works%20using%20artificial%20intelligence,like%20a%20pen%20and%20paper.>

eligible, works must be original, and the majority of criteria of originality need a human author. The "Monkey Selfie" case serves as evidence of how firmly the US held this opinion.[8] Here, the photographer left his camera set up so that one of the macaques could snap pictures on its own. Assuming he had the copyright, he attempted to license these images, but his legal assertions were quickly refuted. Despite being personally responsible for the creative works, the court dismissed the lawsuit, ruling that the monkey could not be regarded as an author or have a copyright.[9]

The court in the *Feist v. Rural* decision ruled that copyright law only safeguards intellectual property that is based on the creative capabilities of the mind.[10] A court in Australia drew a similar conclusion in the *Acohs v. Ucorp* case,[11] holding that a work created by a computer program could not be covered by copyright since it was not created by a human. Moreover, the European Union's Court of Justice has delivered rulings on several occasions, most notably in the *Infopaq*[12] ruling. The court ruled that an original work must represent the "author's intellectual creation" for copyright protection to apply. This is the first approach, the stance taken by various jurisdictions in Europe, such as Spain and Germany.

The second approach would be granting authorship rights to the person who made the arrangements necessary for the production of the work. This is the position taken by India, New Zealand, the United Kingdom, as well as Kenya. According to Kenya's Copyright Act, the person who made the arrangements necessary for the development of a computer-generated work is considered the author.[13] This means the copyright in AI-generated works is held by the person who made the necessary arrangements for the creation of the work in question.
From the two positions taken, we see the stance of AI-generated work in the field of copyright. This form of technology is developing and sooner or later we will be dealing with most of the work developed with or without the help of AI. If and so that happens, we hope to have come up with ways in which the copyright law of Kenya caters for this.

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[8] *Naruto v Slater* (2016), District Court of the United States.
[9] *Naruto v Slater* (2016), District Court of the United States.
[10] *Feist Publications v Rural Telephone Service Company*, *Inc*. (1991), The Supreme Court of United States.
[11] *Acohs Pty Ltd v Ucorp Pty* Ltd (2012) Federal Court of Australia.
[12] *Infopaq International A/S v Danske Dagblades Forening* (2009)
[13] Section 2, *Copyright Act* (No. 12 of 2001).

1.2. Problem Statement

The Copyright Act defines an author of computer-generated works to be the person who made the arrangements necessary for the creation of the work. This definition poses some questions that are left unanswered. For example, what would qualify as necessary arrangements and how is this assessed? Who is to be regarded as the "person by whom the arrangements necessary for the creation of the work were undertaken"? It's unclear from the Act who this individual is—the user or the programmer who wrote the code. Both should ideally be involved in the creation of the AI program. Nonetheless, the act implies that the individual that arranges the work in question—in this instance, the user—is the author and, as such, the owner of the copyright.

In terms of AI, to be considered an author, the user's input to the creative process can be as low as clicking a button and letting the AI take care of the rest. At the same time, however, a programmer who allows AI to generate works is deemed to be a creator and or author, according to the Kenya Copyright Act, since they made the necessary arrangements for the AI program to be created. Therefore, according to Kenya's current legal system, the AI's programmer or creator will be the owner of the source code for the machine, and the AI user who uses the AI to create works will be entitled to the same copyright protection for those works.

Already, journalism, art, music, and gaming have all benefited from the application of artificial intelligence. Because of the differing stance of who the author is, some works are considered free of copyright without the required protection. The fact that AI-generated works would be freely available for anybody to download and reuse would have a detrimental impact on the creative economy. The laws and guiding principles of copyright are violated by this.
Therefore, my study will seek to examine what would amount to necessary arrangements under the Copyright Act and assess where authorship rights would be granted with respect to AI-generated works.

1.3. Research Questions

1. What would amount to necessary arrangements as set out in the Copyright Act of Kenya?

2. Does the Copyright Act of Kenya grant authorship to a programmer or a user in AI-generated works?
3. What lessons can we draw from other jurisdictions regarding AI-generated works in comparison to Kenya's?

1.4. Research Objectives

1. To assess what would amount to necessary arrangements as set out in the Copyright Act of Kenya
2. To determine whether the Copyright Act of Kenya grants authorship to a programmer or a user in AI-generated works.
3. To conduct a comparative analysis with the United Kingdom to analyze their assessment of authorship rights in AI-generated works.

1.5. Hypothesis

The authorship of AI-generated work should be granted to the programmer because their human involvement is much more significant as opposed to that of the user and they can be said to have taken enough necessary arrangements to hold authorship rights over the work in question. As such, I hypothesize that programmers ought to be granted authorship rights of AI-generated works.

1.6. Justification

The two opposing views when AI-generated works are involved include not granting copyright protection to the AI and granting authorship to the person who made the necessary arrangements. While the latter is the approach taken in this study, similarly to that of Kenya's, it still poses a threat to the future of copyright and raises ambiguity. Such ambiguity will lead to AI-generated works not having a legally identifiable author leaving it to be released to the public domain. This in turn hinders innovation in the AI sector stopping the developers from investing in AI research and further exploring AI-generated works as well as leading to a decline in creativity. This gray area must be addressed keeping in mind the rapidly growing nature of AI technology. This study

will be useful to lawmakers, in so far as it would assist them in better understanding AI-generated works to specify where authorship falls.

1.7. Theoretical Framework: Utilitarian Theory

The utilitarian philosophy, which takes its cues from philosopher Jeremy Bentham,[14] examines the apparent impact of a decision by weighing the happiness or pleasures it will bring to a particular number of people against the suffering it will bring to a different number of people.[15] The concept known as the principle of utility states that every activity should be approved or disapproved of based on the apparent tendency it has to raise or decrease, for example, to support or oppose the happiness of the individual or group of individuals whose interests are at issue.[16]

The expansion of the arts, sciences, and knowledge would benefit society with the application of utilitarian copyright law. The theory would suggest that inventions and creative works have a certain kind of relevant social value, given it would be in the public interest to encourage their production to increase social utility. In the long run, the right holders would benefit from copyright law protection for AI-generated works through the use of the utilitarian formula. Several types of happiness are included in the calculation based on Bentham's use of happiness to better explain utilitarianism. We have the pleasures of skill that are exercised on objects, those which accompany the application of such instruments of enjoyment to the parties involved.[17] The satisfaction of maintaining their reputation while protecting the authenticity of their works. The joys derived from connections that fall on the contentment of both authors and consumers include their capacity to get creative works and apply them to the production of secondary works via the delights of skill.[18]

Compared to consumers, there are fewer creators. Given this, a strictly utilitarian worldview would prioritize the well-being of the greater community, providing them with access to

[14] Jeremy Bentham was an English philosopher, jurist, and social reformer who was the founder of the philosophy of 'utilitarianism'.
[15] Longan M, 'A System of Balance: A Critical Analysis of Philosophical Justifications for Copyright Law through the Lenz of Users' Rights', 2011, 20.
[16] Bentham J, *An Introduction to the Principles of Morals and Legislation*, (2017 edition), 7.
[17] Bentham J, *An Introduction to the Principles of Morals and Legislation*, 25.
[18] Bentham J, *An Introduction to the Principles of Morals and Legislation*, 27.

materials that would foster their creativity. This would point to a solely utilitarian copyright law, which is to say that it does not exist. But in the absence of protections, the quantity and caliber of artistic creations would decline, lowering the satisfaction of the greater number of people who would otherwise be classified as consumers.[19]

Longan offers a more suitable utilitarian response that emphasizes complete protection for the right to reproduce—that is, a safeguard against forgeries, counterfeits, and illegal copies. Liability regulations accompany this, defending the rights of creators—in this case, programmers and AI users—to guarantee their well-being and foster creativity.[20]

The claims laid down by utilitarian theorists could be better understood through the lens of incentive. Incentives can be instrumental in the quick development of creative works. More benefits to the creators do not mean less benefit to society at large. Individuals are incentivized to create more copyrightable works as a result. Kumar describes it as a win-win situation wherein the persons enjoying these rights are not required to look at the government for the development of the day for their survival. They put up their labor naturally and have a claim and an entitlement even though no law is formulated to protect one's interest. Their work shall be promoted by effective copyright protection mechanisms.[21]

Various authors oppose the theory of utilitarianism. Nozick for example proposed what was termed to be a sensible constraint on the principle of utility, saying that there is no moral outweighing one of our lives by others to lead to a greater social good. This can be taken to be that there need not be a justified sacrifice of some for the benefit of others.[22] On the other hand, Bottis points out that if copyright is primarily used to benefit the public rather than the creator—that is, to presumably encourage the creator to work by safeguarding their work—then the artist will no longer be the owner of their expression.[23] As a result, the creator is forced to serve the public against their will and is turned into a soldier fighting for the welfare of all. This

[19] Longan M, 'A System of Balance: A Critical Analysis of Philosophical Justifications for Copyright Law through the Lenz of Users' Rights', 2011, 21.
[20] Longan M, 'A System of Balance: A Critical Analysis of Philosophical Justifications for Copyright Law through the Lenz of Users' Rights', 2011, 21.
[21] Kumar S and Kumar M, 'Natural Rights Theory of Copyright Protection' *Ad Valorem, Journal of Law,* 2016, 9.
[22] Nozick R, *Anarchy, State, and Utopia* (1974), 6.
[23] Bottis M, Utilitarianism v Deontology: A Philosophy for Copyright, *Ad Valorem, Journal of Law,* 2018, 9.

interpretation is more akin to the people's authoritarian rule, if not the same. Since the creators are significant contributors to the community, their rights ought to be upheld.[24]

The theory of utilitarianism is crucial to this study because it focuses on maximizing the benefits to society as a whole and using it as a tool to incentivize creators of copyrightable works. In this instance, authors who aim to use AI to generate copyright work. By acknowledging and identifying where authorship falls it does away with AI-generated work being set out in the public due to lack of an identifiable author. The creators lose an incentive to create using AI software seeing as their work is at the precipice of being let out to the public for free due to conflicted and unspecified authorship within the law.

1.8. Literature Review

1.8.1. On what would amount to necessary arrangements as set out in the Copyright Act of Kenya?

The Copyright Act of Kenya does not recognize works created purely by machines and the consensus is that there ought to be human involvement for the work to be considered copyrightable.[25] The question then falls back to what extent will human involvement be considered sufficient for a work created through AI to be copyrightable.

McCutcheon looks at a few factors that appear important when describing the arrangements, the importance, and the relative weight, which might change depending on the type of work.[26] McCutcheon starts off by mentioning intention. To do this, it is necessary to ask who initiated the work with the goal of generating it.[27] She advances to talk about proximity. You would be one step closer to figuring out which arrangements were made throughout the finality of the creation if you asked when the arrangements happened during the processes of creation. Acts far from the

[24] Bottis M, Utilitarianism v Deontology: A Philosophy for Copyright, 2018, 9.
[25] Section 2, *Copyright Act* (No. 12 of 2001)
[26] McCutcheon J, 'Curing the Authorless Void: Protecting Computer Generated Works Following IceTV and Phone Directories' Melbourne University Law Review, UWA Faculty of Law Research Paper No. 28, 2013, 55 - https://ssrn.com/abstract=2308187 on 8 January 2024.
[27] McCutcheon J, 'Curing the Authorless Void: Protecting Computer Generated Works Following IceTV and Phone Directories' 55.

ultimate materialization, according to her, are less likely to be sufficient preliminary arrangements.[28] The degree to which the arrangements shape the form of the work is the third consideration she raises. Once the arrangements are aimed at the work's tangible manifestation, they are deemed to be easily granted authorship. Lastly, she discusses the materialization of the work which is mostly dependent on the users and the individuals directed to run the AI.

The role of the author as a material fixer is consistent with the initiation and execution of the automation process and is considered to be a strongly relevant arrangement.[29] As McCutcheon notes, the only downfall with this is that it could award authorship to a mere 'button pusher'. It may also be controversial to award it to the fixer whereas the law requires it to be granted to the person who made the arrangements necessary.[30]

According to Hristov, AI is a tool used by human authors. These are works created by AI programs with direct human supervision, assistance, or input.[31] He gives the example of a painting created by an artist who chooses the colors, the kind of tool (brush size and style), and has partially entered his specifications into the AI algorithm that produced the piece. The artist actively participated in the construction of the expected painting, thus he has certain expectations about its appearance even though he cannot precisely foresee how it will turn out. An author of such a work may be able to legally claim ownership of the final product under U.S. copyright law if he credits the AI program as a medium utilized during the production of the work. If the author cites the AI software as a tool or medium employed in the creative process, he may have legal claims over the produced work,[32] similar to the situation in *Burrow-Giles Lithographic Co. v. Sarony*. [33]

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[28] McCutcheon J, 'Curing the Authorless Void: Protecting Computer Generated Works Following IceTV and Phone Directories' 55.
[29] McCutcheon J, 'Curing the Authorless Void: Protecting Computer Generated Works Following IceTV and Phone Directories' 56.
[30] McCutcheon J, 'Curing the Authorless Void: Protecting Computer Generated Works Following IceTV and Phone Directories' 56.
[31] Hristov K, 'Artificial Intelligence and the Copyright Dilemma' *The Journal of the Franklin Pierce Center for Intellectual Property,* 2017, 5 - https://www.researchgate.net/publication/316761384_Artificial_Intelligence_and_the_Copyright_Dilemma on 9 January 2024.
[32] Hristov K, 'Artificial Intelligence and the Copyright Dilemma' 5.
[33] Burrow-Giles Lithographic Co. v Sarony (1884), The Supreme Court of the United States.

Bearing in mind the factors raised by McCutcheon and the use of AI as a tool or medium for creation, such methods can qualify for necessary arrangements as set out in the law. The courts might use this as a criterion in analyzing where authorship falls when it comes to AI-generated work in determining whether human involvement falls to the programmer or the user.

1.8.2. On whether authorship should be granted to a programmer or a user of AI-generated works.

In determining whether authorship rights should be granted to a programmer or a user of AI-generated works, one ought to consider the necessary arrangements made by everyone. Necessary arrangements are the steps taken by either the programmer or the user through an AI to produce AI-generated copyrightable work. Human involvement is needed to grant authorship rights.

Authorship rights cannot be granted where there is a lack of human involvement. According to the creativity doctrine, artificial intelligence (AI) may be awarded authorship rights if it is the true creative force behind the copyrightable work. As computers and artificial intelligence lack legal personality, giving credit for writing the work to the AI presents serious problems.[34] Therefore AI cannot be authors.

However, one could argue that the programmer has made the most contribution to the originality and creativity of AI-generated work. Yu suggests that the programmer had an idea for a software program that could produce literary works, made a strategy for how to construct the program, produced the required coding, and fixed all the flaws that were preventing the program from working as intended.[35]

[34] Yu R, 'The Machine Author: What Level of Copyright Protection is Appropriate for Fully Independent Computer-Generated Works? *Penn Carey Law Journals,* 2017, 1258 - https://scholarship.law.upenn.edu/penn_law_review/vol165/iss5/5 on 8 January 2024.
[35] Yu R, 'The Machine Author: What Level of Copyright Protection is Appropriate for Fully Independent Computer-Generated Works? 1258.

According to Samuelson, a programmer should be given thorough consideration when it comes to authorship rights since they will have had a significant role in producing whatever output that the program—in this example, the AI.[36] Accordingly, the programmer's input will almost always appear to be more substantial and significant when compared to the user's, which is frequently restricted to uncreative actions like typing "compose" into a music generator tool.[37] Haugeland claims that the computer simply follows the instructions of the programmer.[38] According to Samuelson, the programmer wrote the code that allowed the user to provide the result by giving the machine general instructions.

Miller addresses the issue of authorship and concludes that the National Commission on New Technological Uses of Copyrighted Works (CONTU) came to a clear conclusion in their final report that the creator is the one operating the computer.[39] This is predicated on the idea that the user will significantly influence how the work is produced. Nimmer notes that this is frequently hard to defend when the user's contribution is seen to be minimal because anyone asserting authorship rights may have altered the material to make the piece uniquely their own.[40] Yu points out that one may argue that just by requiring the user to interact with the program in order for it to generate an output (by, for example, typing "start" or clicking a button), this action qualifies as the amount of contribution required to support authorship rights.[41]

The task of the user is becoming increasingly simple and ministerial, it may be necessary to identify the author of a computer-generated work other than the person who employs the computer due to the increasingly sophisticated nature of artificial intelligence programs. Considerable thought will have to be devoted to the task of identifying who it is that qualifies

[36] Samuelson P, 'Allocating Ownership Rights in Computer-Generated Works' Berkeley Law, I986, 1205.
[37] Samuelson P, 'Allocating Ownership Rights in Computer-Generated Works' Berkeley Law, I986, 1205.
[38] Haugeland J, 'Artificial Intelligence: The Very Idea' Massachusetts Institute of Technology, 1984.
[39] Miller A, 'Copyright Protection for Computer Programs, Databases, and Computer-Generated Works: Is There Anything New Since CONTU' 106 *Harvard Law Review* 6, 1993, 1056.
[40] Nimmer M & Nimmer D, 'Nimmer on Copyright', 2011, 7.
[41] Yu R, 'The Machine Author: What Level of Copyright Protection is Appropriate for Fully Independent Computer-Generated Works? 1259.

under that standard.[42] One can have a look at the factors under necessary arrangements proposed by McCutcheon.[43]

1.9. Methodology

This study will rely on qualitative research that will emanate mostly from secondary sources such as research reports, journal articles, chapters in books, and case law. It will also rely on primary sources such as the Copyright Act of Kenya. This study will be a desk-based project that will utilize a deductive understanding that establishes premises from which the main claim will be derived.

To carry out this research, this study will first seek to dissect what would amount to necessary arrangements in AI-generated work to grant authorship rights. This will entail looking at the proposed criteria of what would amount to necessary arrangements, as well as analyzing the level of human involvement in AI-generated work. While establishing what would amount to necessary arrangements, this study will identify whether the authorship rights fall to the programmer or the user.

This study will then examine the various involvements made by both parties. This will be done through an analysis of scholarly work in books, reports, journal articles, and theses. It will then be evident that authorship falls to the person who made the significant contributions to the work. Conclusively, this study will assess the impacts of not assessing authorship rights when it comes to AI-generated work. The rationale for employing this methodology is to provide clear and concise answers to legal questions, based on legal texts and authoritative sources of law.

1.10. Chapter Breakdown

Chapter One will serve as the prefatory chapter of this study. It entails, among others, the research questions and objectives, the theoretical framework, and the justification of the study, and on that basis, it will set the stage for the subsequent chapters. Chapter two will dissect what

[42] Miller A, 'Copyright Protection for Computer Programs, Databases, and Computer-Generated Works: Is There Anything New Since CONTU' 1056.
[43] McCutcheon J, 'Curing the Authorless Void: Protecting Computer Generated Works Following IceTV and Phone Directories'.

qualifies for necessary arrangements in AI-generated works. It will analyze what level of human involvement is needed for authorship rights to be granted.

Chapter three will draw lessons from the United Kingdom (UK) and Australia by studying their copyright laws on computer-generated works to learn from their approach to suggest ways in which Kenya can adopt this outlook.

Chapter four will investigate whether authorship rights fall on the programmer or the user. This chapter shall delve into the contributions made by both parties and the level of human involvement according to the work to grant its authorship rights.

Chapter five of the study will conclude the study and provide recommendations by studying jurisdictions that have adopted the 'arrangements necessary' regime in granting authorship rights on computer-generated works while also considering the findings of the preceding chapters.

2.0. NECESSARY ARRANGEMENTS: A DISSECTION OF WHAT QUALIFIES FOR 'NECESSARY ARRANGEMENTS' IN AI-GENERATED WORK

2.1. Introduction

The Copyright Act of Kenya allows copyright to be awarded to the work generated by a computer. It provides that the author of literary, dramatic, musical, or artistic work which is computer-generated be '*the person by whom the arrangements necessary for the creation of the work were undertaken*'.[44] A similar position is held by the Copyright, Designs and Patent Act 1988 of the United Kingdom (herein referred to as the CDPA).[45] One of the reasons for the introduction of that specific section in the CDPA was an acknowledgement of the reality that the use of computer technology and its advancements to produce materials covered by copyright meant that the law ought to be flexible enough to accommodate future technological advancements. Future-proofing copyright law in the face of swift technological advancements was also a goal, as was the requirement to make the law simpler to comprehend and implement.[46]

The term "arrangements" represents organizing or preparing something so that the work may be created (keeping in mind that, the expression "necessary arrangements" indicates that there was a certain level of organization or preparation that led to the work being generated).[47] Additionally, the person who made the necessary arrangements already entails human intervention at some point throughout the creation of the work. The current regimes that recognize computer-generated copyrightable work attach the concept of authorship to human intervention. Someone who was involved and made the arrangements that led to the creation of the work is considered to have produced the work. To a certain extent, AI is considered a tool during production.[48]

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[44] Section 2, *Copyright Act* (No. 12 of 2001)
[45] Section 9(3), Copyright, Designs and Patent Act, United Kingdom (1988).
[46] Fitzgerald A and Seidenspinner T, 'Copyright and Computer-Generated Materials – Is it Time to Reboot the Discussion About Authorship?' *Victoria University Law and Justice Journal*, 2013, 43.
[47] Ramalho A, Will Robots Rule the (Artistic) World? A Proposed Model for the Legal Status of Creations by Artificial Intelligence Systems, 2017, 11.
[48] Ramalho A, Will Robots Rule the (Artistic) World? A Proposed Model for the Legal Status of Creations by Artificial Intelligence Systems, 2017, 12.

The necessary arrangements test has been applied by other jurisdictions as well. Still, the question that remains to be answered is what is the suitable test to be used to determine 'necessary arrangements? The approach taken by CDPA has been left by the courts to deal with the matter on a case-by-case basis. Accordingly, a similar approach was adopted in the Australian context.[49] McCutcheon examines a couple of variables that seem significant while characterizing the arrangements, the importance and relative weight, which may change depending on the type of task done.[50]

2.2. The factors relevant to consider when determining the 'arrangements necessary' in AI-generated work

2.2.1. Intention

Asking who inspired the work to make it is part of the intention process.[51] Since AI authors are not regarded as legal entities, some degree of human input is required to award authorship rights for AI-generated works. One of the obstacles the AI system must overcome is intentionality to generate the work, even if it were to match the qualifications needed to demonstrate authorship.

The two players at the forefront of this discourse likely to be granted authorship rights (with respect to AI-generated works are the programmer and the user. If you look at the programmer from the initial phase of developing the software, their intentions might range from merely coming up with the AI itself and can also be creating an AI that has directives of generating work that can be deemed to be copyrightable. The intention is more likely to be seen in the eyes of the user, whose main reason for using the AI is to generate copyright work. Whereas for the programmer, much more scrutiny is needed to identify where their intention falls. It is not as direct as that of the user.[52]

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[49] *Seven Network (Operations) Ltd v TCN Channel Nine Pty Ltd* (2005)
[50] McCutcheon J, 'Curing the Authorless Void: Protecting Computer Generated Works Following IceTV and Phone Directories' 55
[51] McCutcheon J, 'Curing the Authorless Void: Protecting Computer Generated Works Following IceTV and Phone Directories' 55
[52] McCutcheon J, 'Curing the Authorless Void: Protecting Computer Generated Works Following IceTV and Phone Directories' 55

2.2.2. Proximity

Asking when the arrangements occurred during the steps of creation would lead you one step closer to identifying which arrangements were made during the finality of the creation.[53] McCutcheon suggests acts that are far off from the last materialization are more averse to be adequate prior arrangements. Taking this approach excludes programmers from consideration. Programming an AI to work in a particular manner is a process that can be carried out years before the product employing the software is created.[54]

For programmers, a direct intention to create the work is needed. They are aware that the software they created is required to produce work, however, that work is substantially different from the intention to generate it. Conclusively, she urges that the reward for programmers should be the copyright in the software, not the works generated from it. In the finality of the work, the user has a much stronger claim as compared to the programmer.

2.2.3. The Form of the Work

The third is the extent to which the necessary arrangements shape the outcome of the work.[55]

The person shaping the work would be identified to be the author at first instance. In most cases this is the user who shapes the design output as opposed to the programmer who is more involved in the input. This applies to the sole programmer whose involvement is limited to the creation of the software. Additionally, actions which shape the material form of the work are less likely to be considered to be 'arrangements' leading to the creation, and more likely an act of creation itself. Thus, the candidates are less likely to be considered when discussing arrangements. The person selecting the software that shapes the final form of the work is a considerable candidate for authorship.[56] This factor focuses on the level of arrangements needed in shaping the final form of the work, here programmers have a stronger argument as opposed to the users.

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[53] McCutcheon J, 'Curing the Authorless Void: Protecting Computer Generated Works Following IceTV and Phone Directories' 55

[54] McCutcheon J, 'Curing the Authorless Void: Protecting Computer Generated Works Following IceTV and Phone Directories' 55

[55] The product design originates from the design input. The specifications that make up the design input provide a framework for carrying out later design tasks and confirming the design.

[56] McCutcheon J, 'Curing the Authorless Void: Protecting Computer Generated Works Following IceTV and Phone Directories' 56.

2.2.4. Materialization of the Work

McCutcheon focuses on users and those who are instructed to operate software in order to assess the degree to which the arrangements contributed to the work's materialization (programmers who are more involved in the work's generation and their proximity are closer to the work's final creation). A clear and crucial organization is required for the automation process to start and continue in order to produce the work and preserve the importance of the conventional author's role as the material fixer.[57] The consequence of this approach would be to award authorship to a mere 'button pusher'. Take for instance a person claiming authorship rights for recording a live performance of a concert. All they did was press the record button and they would still have a claim for authorship.[58]

2.2.5. Investment

The final factor McCutcheon discusses is investment. This entails finding out who covered the cost of the labor. Since ownership is typically correlated with authorship, the level of investment in the work should be a crucial factor. Giving credit for writing to the individual who paid for the task seems fair. This method focuses on the investment made in the work, hence it would not take into account the software author's investment if the author did not use the program to create the actual work.[59]

Including this final factor to determine where authorship falls would introduce a new party to the discussion. This is the investor of the AI. In consideration of whether investors are suitable authors, the final factor proposed by McCutcheon would work for them, however, the other four factors proposed would not fit in their description. An investor is merely involved in the 'necessary arrangements' to generate copyrightable work and their contributions are rarely seen.

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[57] McCutcheon J, 'Curing the Authorless Void: Protecting Computer Generated Works Following IceTV and Phone Directories' 56.
[58] Samuelson P, 'Allocating Ownership Rights in Computer-Generated Works', I986, 1202
[59] McCutcheon J, 'Curing the Authorless Void: Protecting Computer Generated Works Following IceTV and Phone Directories' 56.

2.3. Determining the 'necessary arrangements' test on a case-to-case basis

The "necessary arrangements" test could appear to be poorly drafted at first inspection.[60] The identity of the individual "by whom the arrangements necessary for the creation of the work were undertaken" is not entirely known. It might be any of the following: the AI's programmer, the computer user, or the software investor. The Nova Production case[61] analyzes this matter and tries to provide more clarification.

In *Nova Productions Ltd v Mazooma Games Ltd*, Nova claimed copyright on the bitmap graphics, and the frames generated and displayed to the user when its game was played.[62] Kitchin J found that the programmer of the software was the owner of a computer-generated work in the case. He reiterated why the programmer was granted ownership "because he advised the appearance of the various elements of the game and the rules as well as the logic by which each frame is generated, and he wrote the relevant computer program".[63] Kitchin J justified that the programmer was the person by whom the arrangements necessary for the creation of the works were undertaken. As a result, some analysts argue that while this conclusion makes sense in this particular factual situation, it is unlikely to hold true in other situations involving computer-generated works.[64] When analyzing this conclusion, one could take into account one of the criteria offered by McCutcheon: in cases where the programmer is not close to the job at hand, other individuals—such as the user—may have made the appropriate arrangements.[65]

The concept of necessary arrangements is discussed in the Australian context as well. In the case of films, the Copyright Act of Australia 1969 vests the copyright in the 'maker' of a cinematographic film.[66] The 'maker' of a film is 'the person by whom the arrangements necessary for the making of the film were undertaken'.[67] Accordingly, the maker can be the

[60] White C and Matulionyte R, "Artificial Intelligence Painting the Bigger Picture for Copyright Ownership" *Australian Intellectual Property Review*, 2020, 27.
[61] *Nova Productions Ltd v Mazooma Games Ltd* (2006) England and Wales High Court.
[62] *Nova Productions Ltd v Mazooma Games Ltd* (2006) England and Wales High Court.
[63] Nova Productions Ltd v Mazooma Games Ltd (2006) England and Wales High Court.
[64] White C and Matulionyte R, "Artificial Intelligence Painting the Bigger Picture for Copyright Ownership" 2020, 27.
[65] McCutcheon J, 'Curing the Authorless Void: Protecting Computer Generated Works Following IceTV and Phone Directories' 55.
[66] Section 98(2), *Copyright Act of Australia* (1969).
[67] Section 22(4)(b), *Copyright Act of Australia* (1969).

producer who is essentially the investor of the film, the director of the film or both of them together, depending on the level of contributions. For example, in the case of *Seven Networks Ltd v TCN Channel Nine Pty Ltd*, both the Seven Network and the director of the film made the necessary arrangements for the creation of the film and were both recognized as owners in the tapes.[68] The existing case law on the 'necessary arrangements' test in Australia provides some legal guidance that the legal community would need, and it also leaves some room for courts to interpret the concept while keeping in mind developments in the field of law.[69]

2.4. Conclusion

The two cases showcase the power of the courts to interpret the 'necessary arrangements' provision on a case-by-case basis to determine where authorship falls. Through this approach the courts provide a much more analytical view on what necessary arrangements mean as the instances may differ depending on the situation at hand. In addition to that, McCutcheon proposes five factors that can be used to further assess the level of human involvement in the AI-generated work (the person who took the necessary arrangements). The factors can act as a guiding tool in better assessing this question. Although the situations might differ depending on the work and the level of human involvement might range, resultantly, the courts can deal with the matter on a case-to-case basis, while adopting the factors presented by McCutcheon in better addressing what would constitute 'necessary arrangements' and will help bring us one step closer to determining where authorship falls in AI-generated works.

[68] *Seven Network (Operations) Ltd v TCN Channel Nine Pty Ltd* (2005).
[69] White C and Matulionyte R, "Artificial Intelligence Painting the Bigger Picture for Copyright Ownership" 2020, 28.

3.0. WHO IS THE AUTHOR OF AI-GENERATED WORKS?

3.1. Introduction

There are three possible parties which may have a strong claim towards the copyright of AI-generated works: the programmers, the user, or the machine. The procedure of identifying the most suitable author must take into account the total social benefit of awarding copyright. Essentially, who would gain more from copyrighting the computer itself, the user, or the programmer?[70] To arrive at this conclusion, the approach this paper has taken is to assess who has made the most significant human contribution to the production of the work. In other words, who has made the arrangements necessary for the AI-generated work.

3.2. The Programmer as the Author

The originality and creativity of AI-generated works have primarily been attributed to the programmer. It was the programmer's idea to design a software application that produces copyrightable works, organize the program's setup, provide the required coding, and solve any issues that prevented the program from working flawlessly. It may be argued that programmers' ingenuity has made it possible for AI to produce work.[71] Following the arrangements made before the production of the AI-generated work, it would be reasonable to allocate the rights to the programmer.

Taking the approach that the programmer was the one who contributed their time, creativity, and energy to produce the AI, would result in some incorrect presumptions that some opponents have made while refuting any queries about AI authorship..[72] It leads to the assumption that the AI was programmed with step-by-step instructions by the programmer.[73] Neural network and deep learning-based advanced artificial intelligence programs begin as illiterate models that are trained to become more proficient. For a neural network to learn how to detect dogs, for

[70] Hristov K, 'Artificial Intelligence and the Copyright Dilemma' 14.
[71] Yu R, 'The Machine Author: What Level of Copyright Protection is Appropriate for Fully Independent Computer-Generated Works? 1258.
[72] Pearlman R, 'Recognizing Artificial Intelligence (AI) as Authors and Inventors Under U.S. Intellectual Property Law', 24, *Richmond Journal of Law and Technology,* 2018, 31.
[73] Tanz J, Soon We Won't Program Computers. We'll Train Them Like Dogs. <https://www.wired.com/2016/05/the-end-of-code/> accessed 14 February 2023

example, you show it hundreds of photographs of dogs and ultimately it will learn to recognize them, rather than instructing it to search for fur, ears, tails, and eyes. If the network keeps making mistakes, you don't change the program; instead, you keep teaching it.[74] It is a comparable approach to experience learning that people have used. The way a child learns to read is not always clear-cut, and programmers are frequently taken aback by the outcomes of these networks.[75]

First and foremost, the programmer's significant input to the creation of any output produced by the use of AI makes them deserving of careful consideration when it comes to authorship.[76] If it weren't for the programmer's creativity, the output might have never been brought into existence. If the output produced by the AI is of excellent quality, it would be fair to attribute some part of the excellence and the fruit of his intellectual labor to the programmer.[77]
When compared to human input, which could be restricted to activities that lack creativity such as entering "compose" into an AI music or literary generator, the programmer's involvement in the final product will be deemed more noteworthy and substantial. Ultimately, the computer software simply executes the programmer's commands.[78]

By providing generic instructions to the computer, it is possible for a user to produce an output thanks to the programmer's coding capabilities. The programmer is responsible for the accuracy and specificity that were incorporated into the software.[79] Furthermore, from this perspective, the person using a program might not seem any more deserving of recognition as the "author" of the output than the person using a videogame would be for the audiovisual work that is produced when he presses a button to "shoot" at pictures of spaceships attacking.[80]

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[74] Tanz J, Soon We Won't Program Computers. We'll Train Them Like Dogs. <https://www.wired.com/2016/05/the-end-of-code/> accessed 14 February 2023
[75] Pearlman R, 'Recognizing Artificial Intelligence (AI) as Authors and Inventors Under U.S. Intellectual Property Law', 2018, 31
[76] Samuelson P, 'Allocating Ownership Rights in Computer-Generated Works', I986, 1205.
[77] Nimmer M & Nimmer D, 'Nimmer on Copyright', 2011, 7.
[78] Haugeland J, 'Artificial Intelligence: The Very Idea' *Massachusetts Institute of Technology*, 1984.
[79] Samuelson P, 'Allocating Ownership Rights in Computer-Generated Works', I986, 1206.
[80] *Midway Manufacturing Company v Artic International, Incorporated,* (1983) United States Court of Appeal for the Seventh Circuit.

Programmers (or as Matulionyte and Lee term them software developers)[81] are often considered to provide contributions essential to the creation of AI-generated works. Although the creators of these works are not software developers, they would not have existed in the first place without their software. When AI-generated works are created with their software, software developers have a far easier time claiming ownership of those works. The term "software developer" has two broad definitions: it can refer to a single programmer who creates the software initially, or it can refer to the business that employs programmers to create the software, which the business then owns.[82]

3.3. The User as the Author

In its final report on new technology uses of copyrighted works,[83] CONTU concluded that the answer to the question of who is the author in AI-generated works is the one who employs the computer.[84] As a result of the increased sophistication of AI programs, the tasks of the user become increasingly simple and ministerial, making it necessary to identify an author of an AI-generated work other than the persons who merely 'employ' the computer. From the onset, considerable thought ought to be devoted to the task of identifying who it is that qualifies under that standard.[85] It can be either one of the parties listed at the beginning of this chapter. The assessment of a user employing a computer was built upon the view that they would have a substantial contribution to the output of the work.[86] When a user's role is almost nonexistent, this stance becomes harder to sustain because someone asserting their claim for authorship has to

[81] Matulionyte R and Lee J, Copyright in AI-Generated works: Lessons from Recent Developments in Patent Law, Volume 19, Issue 1, 2022, 13.
[82] Matulionyte R and Lee J, Copyright in AI-Generated works: Lessons from Recent Developments in Patent Law, Volume 19, Issue 1, 2022, 13.
[83] National Commission on New Technology Uses of Copyrighted Works, Final Report on New Technology Uses of Copyrighted Works, 1979.
[84] Miller A, 'Copyright Protection for Computer Programs, Databases, and Computer-Generated Works: Is There Anything New Since CONTU' 106 ,1993, 1056.
[85] Miller A, 'Copyright Protection for Computer Programs, Databases, and Computer-Generated Works: Is There Anything New Since CONTU' 106 ,1993, 1057.
[86] Yu R, 'The Machine Author: What Level of Copyright Protection is Appropriate for Fully Independent Computer-Generated Works? 1259.

have tampered with the content to make the work uniquely theirs.[87] The user has a much stronger argument on the grounds of proximity to the work.[88]

The user's engagement with the AI for it to produce an output is more on the surface (such as typing "start" or clicking a button), one can drive a dubious assertion that such actions will be sufficient to show a level of human contribution in warranting authorship.[89] We may compare the program to a camera or recording device, and people who use these tools are sometimes seen as the creators of the artistic creations that are generated.[90] This argument ignores the fact that the creative choices made when creating works produced by AI are less extensive than those made when creating works captured on camera or recorder. Since the end user is frequently thought to have no real control over the arrangement or composition, it is challenging to claim that the computer fosters human creativity.[91] Thus remains the question of fixation and originality.

Often, human users write the entirety of computer-generated work. Claiming that the user is the author does not provide a conceptual issue because the user will have provided the computer with thorough and precise instructions in several situations.[92] It becomes more difficult for the user to claim authorship when the user provides instructions that are progressively vague or general. In these situations, the computer plays a larger role in the organizing process.[93] When a user's contribution is limited to inducing the output to be generated, it becomes challenging to defend user authorship. For example, entering the word "compose" into a software that generates music. Accordingly, there can be no authorship if the output is, for example, a piece of literature work that was encoded in the program under the arrangements made by the programmer. In that case, the programmer is considered as the author.

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[87] Nimmer M & Nimmer D, 'Nimmer on Copyright', 2011, 9.
[88] One of the factors discussed in the second chapter of this paper is proximity. Proximity to the final output of the work is sufficient to show the contributions of the user to the AI-generated work.
[89] Yu R, 'The Machine Author: What Level of Copyright Protection is Appropriate for Fully Independent Computer-Generated Works? 1259.
[90] Samuelson P, 'Allocating Ownership Rights in Computer-Generated Works', I986, 1202.
[91] Yu R, 'The Machine Author: What Level of Copyright Protection is Appropriate for Fully Independent Computer-Generated Works? 1259.
[92] Samuelson P, 'Allocating Ownership Rights in Computer-Generated Works', I986, 1201.
[93] Feuer M, "VLSI Design Automation: An Introduction," in Proceedings of the IEEE, vol 71, issue 1, 1983, 7.

Traditionally, to assert authorship rights, one has had to have inadvertently altered the subject matter in some way, even if it was unintentional. It should be obvious in these cases to award authorship rights to the user who has just typed the term "compose." It can still make sense to grant the user permissions to the output. To begin with, the user will have been in charge of fixing the work. This is the one that spearheaded the creation of the work right away.[94] According to copyright law, the creator of a work is the one who fixed it in a tangible medium.[95]

Nonetheless, the originality standard also upholds the user's claim to ownership of an AI-generated work's output.[96] The creator of the sound recording is the one who records a live performance at a music event on tape. Even though the only creative thing they can come up with is hitting the "record" button. Another illustration is Google's AI software *Poem Portraits*, which generates poetry based only on a user's input of a single word.[97]
If this is the degree of originality required to sustain copyright, then if an AI program's user did nothing more than input the word "compose," it should be easy to identify them as the creator of the work produced by the program. In AI-generated works, the user will naturally be choosing, organizing, editing, and polishing the raw output to confirm that there is enough originality to back up the user's assertion.[98]

3.4. The Machine as the Author

The AI program might also be considered for authorship. An allocation of this kind would appear to be in line with the current regime which grants authorship to the entity that is the true creative power behind the work protected by copyright.[99] As an AI lacks legal personhood, giving the machine authorship creates a serious legal problem if it produces the work on its own. Furthermore, it lacks the discretion to choose whether or not to produce future works that are

[94] Samuelson P, 'Allocating Ownership Rights in Computer-Generated Works', I986, 1202.
[95] Section 22(3)(b), *Copyright Act of Kenya* (No. 12 of 2001).
[96] Section 22(3)(a), *Copyright Act of Kenya* (No. 12 of 2001).
[97] White C and Matulionyte R, 'Artificial Intelligence Painting the Bigger Picture for Copyright Ownership', 2019, 25.
[98] Samuelson P, 'Allocating Ownership Rights in Computer-Generated Works', I986, 1203.
[99] Yu R, 'The Machine Author: What Level of Copyright Protection is Appropriate for Fully Independent Computer-Generated Works? 1258.

protected by copyright.[100] Giving AI the ability to become an author by granting it legal personhood would be a huge step forward and force careful consideration of the wider ramifications of giving an AI legal standing.[101]

An AI's legal personhood may require careful consideration in the near future. For instance, when Saudi Arabia awarded citizenship to a robot called Sophia, it became the first nation to bestow legal personhood to an artificial intelligence.[102] Furthermore, in a 2015 report, the World Economic Forum projected 21 anticipated Technology Tipping Points.[103] One of the points raised was the possibility of an AI computer serving on a company board of directors by 2025.[104] As of right now, giving the AI itself authorship rights seems premature and implausible.

3.5. Conclusion

The parties involved in the production of AI-generated work have been discussed in this chapter and their level of human contribution assessed. For the AI itself, it is evident that the consensus in copyright law is to award such rights to parties with legal personhood. The AI having produced the work autonomously will lead the work to be exposed for free use and goes against the principles of copyright law. There must be some level of human contribution whenever the AI is involved making the programmer and the user have a better claim. For their authorship claim to succeed the parties must show who made the arrangements necessary to the production of the work and their level of contribution ought to be much higher as compared to the other party.

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[100] Pearlman R, 'Recognizing Artificial Intelligence (AI) as Authors and Inventors Under U.S. Intellectual Property Law', 2018, 29.
[101] Ramalho A, Will Robots Rule the (Artistic) World? A Proposed Model for the Legal Status of Creations by Artificial Intelligence Systems, 2017, 13.
[102] Alloway T, 'Saudi Arabia Gives Citizenship to a Robot', *Bloomberg,* 2017. <https://www.bloomberg.com/news/articles/2017-10-26/saudi-arabia-gives-citizenship-to-a-robot-claims-global-first > (accessed Feb 11 2024)
[103] Deep Shift Technology Tipping Points and Societal Impact, Global Agenda Council on the Future of Software and Society, World Economic Forum, 2015.
[104] Schwab K, 'The Fourth Industrial Revolution', *World Economic Forum,* 2016, 26.

4.0. LESSONS LEARNT FROM THE UNITED KINGDOM AND AUSTRALIA IN THE ASSESSMENT OF AUTHORSHIP RIGHTS OF AI-GENERATED WORKS

4.1. Introduction

AI is advancing, and so is its use in generating content. This raises some concerns in the field of intellectual property law such as who is the author of such works created using AI. This chapter navigates the legal landscape surrounding AI copyright in the United Kingdom and Australia. The main aspects of the analysis will focus on the court's assessment of authorship in computer-generated works, as well as the level of human involvement. The chapter will conclude by assessing the high standard of originality adopted within the Australian copyright law context and how this can be addressed in the field of AI.

4.2. AI-generated works in the United Kingdom

4.2.1. An outline of the relevant laws under the CDPA

In the UK, copyright is governed by the Copyright, Designs and Patent Act 1988 (CDPA). For computer-generated works with different authorship and copyright duration criteria, the CDPA provides a unique provision. According to the statute, "works generated by a computer in circumstances such that there is no human author of the work"[105] are considered computer-generated works. It is assumed that the author is the one who made the arrangements required to produce the work.[106] The copyright will expire after fifty years from the end of the year the work was created.[107]

4.2.2. Computer-generated works pre the CDPA: The Copyright Act of 1956

[105] Section 178, *Copyright, Designs and Patents Act* (1988).
[106] Section 9(3), *Copyright, Designs and Patents Act* (1988).
[107] Section 12(7), *Copyright, Designs and Patents Act* (1988).

At least two instances in the UK examined computer-generated works in relation to the earlier Copyright Act of 1956.[108] There were no provisions for computer-generated works in this Act. In the case of *Express Newspapers plc v. Liverpool Daily Post Echo*,[109] The plaintiff ran a "Millionaire of the Month" promotion in which they gave readers cards containing a five-letter code that they could compare to the computer-generated daily newspaper grid to see if they had won a prize. The defendant was sued for copyright infringement after he duplicated these grids. One of the defenses advanced by the defendant was that since the grids were created by a machine, they lacked a human creator and could not be protected under copyright.

Whitford J. disagreed, saying that the computer was only a tool used to generate different grids of five-letter sequences based on the programmer's instructions as expressed in the computer programs.[110] According to Whitford J., it would be as implausible to argue that the programmer wasn't the author as it would be to argue that, when someone writes something down with a pen, the pen itself produces the piece rather than the person using the pen.[111] One conclusion to make from this is that the judge was intimidating there would be no difference between a pen and a computer program.

4.2.3. Introduction of Computer-generated Works into the CDPA

Before the Express case, Whitford J had chaired the "Whitford Report" which established computer-generated works. Whitford J stated that "the correct approach is to look at the computer as a mere tool in a similar way as a slide rule or even, in a simple sense, a paintbrush. A very sophisticated tool, with considerable powers to extend man's capabilities to generate new works, but a tool nevertheless."[112] The report concluded that the person originating the data to

[108] In *Cummins v Bond* 1927, the court was asked to try for copyright in a work that was allegedly written by a journalist who was acting as a spiritual medium. The court was not willing to decide that "authorship and copyright will rest with someone already domiciled on the other side of the inevitable river. They opined that the rights had to vest in a territorial being.
In the case of *The Jockey Club v Rahim* (unreported) of 1983, the court had a similar outcome. It involved a situation where computers were generating lists of runners and riders for horse races.
[109] *Express Newspapers PLC v Liverpool Daily Post & Echo* (1985) English and Wales Court.
[110] *Express Newspapers PLC v Liverpool Daily Post & Echo* (1985) English and Wales Court.
[111] *Express Newspapers PLC v Liverpool Daily Post & Echo* (1985) English and Wales Court.
[112] The Whitford Committee on Copyright Designs and Performer's Protection, 1977, para 514.

provide the computer and the computer programmer should be the authors of any computer-generated works.[113] The Government issued the *Green Paper* report in response to the Whitford Report. Mainly, this report stated that the user, who is potentially distinct from the programmer, should be considered to be an author.[114] In 1986, a White Paper was published titled *Intellectual Property and Innovation.*[115] The paper argued that the 1981 Green Paper has shown that circumstances vary on a case-to-case basis and that a general solution will not be deemed to be fair in all cases. At the time there were no practical problems that arose from the absence of granting authorship of computer-generated works. Resultantly, the government therefore concluded that no specific laws should be drafted to address this question. If no human skill or effort has been expended, then no work warranting copyright protection has been created.[116]

Following this White Paper, the Copyright Committee of the British Computer Society submitted a proposal to the government arguing that computer-generated works should be protected as a work on its own. The proposal was that the copyright owner or 'maker' should be defined as the person by whom the arrangements necessary for the making of that computer-generated work are undertaken.[117] The CDPA adopted this language. Some claim that the British Computer Society's proposed language was modeled after provisions for film authorship under the Copyright Act of 1956.[118]

4.2.4. The Court's Analysis in the UK

After the enactment of computer-generated works into the CDPA, the concept of authorship was considered in *Nova Productions Ltd v Mazooma Games Ltd.*[119] In this case, the parties were competing manufacturers of electronic pool games. The plaintiff claimed copyright in its

[113] Abbot R, 'Artificial Intelligence, Big Data and Intellectual Property: Protecting Computer-Generated Works in the United Kingdom', *Research Handbook on Intellectual Property and Digital Technologies,* 2017, 6.
[114] Reform of the Law Relating to Copyright, Designs and Performer's Protection, A Consultative Document, 1981, 58.
[115] Intellectual Property and Innovation, 1986.
[116] Intellectual Property and Innovation, 1986, Chapter 9 para 9.6.
[117] Hart R, 'Copyright and computer-generated works', 40 *Aslib Proceedings,* 1988, 173.
[118] Abbot R, 'Artificial Intelligence, Big Data and Intellectual Property: Protecting Computer-Generated Works in the United Kingdom', 2017, 6.
[119] *Nova Productions Ltd v Mazooma Games Ltd* (2006) England and Wales High Court.

graphics and the frames generated by the software from those graphics and displayed to users during gameplay. Kitchin J regarded the software-generated frames based on user actions to be computer-generated works, even though the component graphics of the frame were designed by a person.[120] It was further held that the author of the computer-generated work, in this case, was the company director who was responsible for designing the game; the person who devised the rules and logic for frame generation; designed the appearance of the various elements displayed; and wrote the program. As opposed to the game player who contributed no skill or labor of an artistic kind.[121]

In conclusion, while the judicial experience as far as computer-generated works is concerned is limited, it is also clear that copyright protection is present. The "author" of computer-generated works as stipulated in the CDPA is the person by whom the arrangements necessary for the creation of the work are undertaken.[122] There have not been that many case laws related to authorship of computer-generated works, however, due to the growing nature of technology and the involvement of artificial intelligence, the courts are bound to be faced with such situations to deal with. Cases that have investigated authorship for films may be instructive.[123] A film's producer and the principal director are deemed to be joint authors. A producer, "relating to a sound recording or a film, means the person by whom the arrangements necessary for the making of the sound recording or film are undertaken".[124] Cases have found it is relevant to identify who instigated the making of the film, who paid for the making of the film, whether it would not have existed but for the input of a person, whether more than one person may have been a producer, and the last factor to consider would be extent of creative contributions.[125] The UK displays a degree of novelty in determining authorship of computer-generated works. It may not be clear in all cases whether the person who makes necessary arrangements is a computer's owner (or in this case the AI), the user, or the programmer.[126]

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[120] *Nova Productions Ltd v Mazooma Games Ltd* (2006) England and Wales High Court.
[121] *Nova Productions Ltd v Mazooma Games Ltd* (2006) England and Wales High Court.
[122] Section 9(3), *Copyright, Designs and Patents Act* (1988).
[123] Abbot R, 'Artificial Intelligence, Big Data and Intellectual Property: Protecting Computer-Generated Works in the United Kingdom', 2017, 6.
[124] Section 178, *Copyright, Designs and Patents Act* (1988).
[125] McCutcheon J, 'Curing the Authorless Void: Protecting Computer Generated Works Following IceTV and Phone Directories' 55.
[126] Abbot R, 'Artificial Intelligence, Big Data and Intellectual Property: Protecting Computer-Generated Works in the United Kingdom', 2017, 7.

4.3. AI-generated works in Australia

In order to be granted copyright protection under Australian Copyright law, the work must be reduced to material form,[127] it must be within the categories of copyrightable works,[128] it ought to be original,[129] and the work must have been published in Australia.[130] AI-generated works are capable of meeting these requirements except for the current standard accorded to originality. The lessons that can be drawn from this jurisdiction will be identified in this standard.

4.3.1. The Originality Standard in Australian Copyright Law

The first case that addressed and changed the previous standard of originality was *IceTV Pty Ltd v Nine Network Australia Pty Ltd of 2009*.[131] This case dealt with the weekly schedules of broadcast information on television. IceTV collected the programme time and title information from Nine's Weekly Schedule to initiate a subscription-based electronic programme called 'IceGuide'.[132] Nine claimed that IceTV's production of the time and title information entailed a substantial part of their Weekly Schedule and was in turn infringing on their copyright. The High Court ruled in favor of IceTV and determined there was no infringement because the Weekly Schedule lacked originality in the way the time and title of the television were expressed.[133] The expression of television programmers lacked a choice of expression and essentially the High Court disapproved of the previous originality of mere 'skill and labor' and reiterated that 'there must be some "creative spark" or exercise of skill and judgment" before a work is sufficiently "original" for the copyright to subsist.'[134]

AI-generated works could nonetheless meet the IceTV case's originality criterion. It might be argued that the AI's ability to distinguish between different types of input data and produce an

[127] Section 10(1), *Copyright Act* (1968) (Cth).
[128] Section 10(1), *Copyright Act* (1968) (Cth).
[129] Section 32(1), *Copyright Act* (1968) (Cth).
[130] Section 32(2), *Copyright Act* (1968) (Cth).
[131] *IceTV Pty Ltd v Nine Network Australia Pty Ltd* (2009) High Court of Australia.
[132] *IceTV Pty Ltd v Nine Network Australia Pty Ltd* (2009) High Court of Australia.
[133] *IceTV Pty Ltd v Nine Network Australia Pty Ltd* (2009) High Court of Australia.
[134] *IceTV Pty Ltd v Nine Network Australia Pty Ltd* (2009) High Court of Australia.

output fulfills the requirement of exercising judgment in order for a work to be classified as original.[135] In instances like *Acohs Pty Ltd v. Ucorp Pty Ltd* and *Telstra Corporation Ltd v. Phone Directories Company Pty Ltd*, the court emphasizes that protection is only possible if the work originates from a real person. Therefore, AI-generated works require a certain degree of originality from the author for it to be copyrightable.

4.3.2. Human Involvement: Telstra and Acohs cases

The case of *Telstra Corporation Ltd v Phone Directories Company Pty Ltd*[136] centered on the extent and nature of human intervention in the process of gathering and arranging the collection of material for telephone directories. It was argued that the creation was not the focus of this collection phase. The work was created during the extraction phase, which involved putting the directories in alphabetical order and converting the data into an electronic format.[137] The phone directories were devoid of copyright because this phase involved no human interaction. In addition to requiring "that the work originates with an author or joint author," the Federal Court upheld the "independent intellectual effort" threshold that the High Court had established in the IceTV case.[138]

The standard set by Australia makes it difficult to award copyright protection to works created by AI. Following the judgment in Telstra Corporation v Phone Directories, there ought to be a certain level of human involvement leading to the final creation of the work. Humans might create the algorithm and may (or may not) provide some input data, while the output which is the work is generated independently.[139]

The distinction with the *Telstra Corporation v. Phone Directories* case is that an AI extraction phase is far more complex than the computer program used to create a phone directory. Rather of just arranging information alphabetically, AI uses its judgment to modify input data that has more options than just alphabetical arrangement. As a result, the product produced by AI is far

[135] White C and Matulionyte R, "Artificial Intelligence Painting the Bigger Picture for Copyright Ownership" *Australian Intellectual Property Review*, 2020, 10.
[136] *Telstra Corporation Ltd v Phone Directories Company Pty Ltd* (2010) Federal Court of Australia.
[137] *Telstra Corporation Ltd v Phone Directories Company Pty Ltd* (2010) Federal Court of Australia.
[138] *Telstra Corporation Ltd v Phone Directories Company Pty Ltd* (2010) Federal Court of Australia
[139] White C and Matulionyte R, "Artificial Intelligence Painting the Bigger Picture for Copyright Ownership" *Australian Intellectual Property Review*, 2020, 11.

more creative than that produced by a computer program, like the one that Telstra uses. Nevertheless, if the output is not created by a human author, it will not be safeguarded.[140]

In the computer algorithm-related case of *Acohs Pty Ltd v. Ucorp Pty Ltd*,[141] this conclusion was upheld. In this instance, programmers and transcribers created computerized material safety data sheets for dangerous materials. The application, Infosafe System, was created by programmers, and data was entered by transcribers to modify the data sheet's appearance, structure, and features. Similar to the Telstra case, since human involvement in this instance did not directly contribute to the development of the work, it was not seen as authorship. The material safety data sheets were produced by the computer program Infosafe System using its source code, not by a human. Therefore, the human involvement in this case was further removed from the direction creation of the work. Human involvement can further be removed in cases where AI can work autonomously.[142]

Consequently, copyright protection for AI-generated works is hampered by the necessity that they originate from a human. In Australia, in order to meet the originality threshold and be eligible for copyright protection, the work must originate from a real person. Since AI-generated works do not originate from human authors, they are currently not protected by copyright in Australia. What we can draw from Australia is that the standard of originality accorded to works is high. The cases have presented that there ought to be human involvement that directly relates to the creation of the work and that autonomous works by the AI cannot be granted protection.

[140] White C and Matulionyte R, "Artificial Intelligence Painting the Bigger Picture for Copyright Ownership" *Australian Intellectual Property Review*, 2020, 11.
[141] *Acohs Pty Ltd v Ucorp Pty Ltd* (2012) Federal Court of Australia.
[142] See an AI application called Bayou where the AI can write its own code to generate work. <https://www.futurity.org/artificial-intelligence-bayou-coding-1740702/>

5.0 RECOMMENDATIONS

5.1. INTRODUCTION

The foregoing discourse has served to analyze the authorship of AI-generated works in Kenya by learning from jurisdictions adopting a similar approach and the discussions made by scholars in the field. In the process, there have been findings that prove to be beneficial in assessing the law and effective in coming up with interventions that will provide an efficient approach to understanding where authorship rights of AI-generated works will fall in Kenya.

5.2. FINDINGS

The Copyright Act of Kenya defines an author of computer-generated works to be the person who made the necessary arrangements for the creation of the work. The act continues by defining a computer programmer as an individual who has control over the creation of the software. KECOBO released a report discussing the place of AI in copyright. The report proposes that a computer programmer is initially granted authorship rights of the AI program itself. Their place in the production of AI-generated works is minimal and therefore has no more role to play. Accordingly, the user has much more of a control over the AI program granting them a much stronger claim to authorship rights.

Granting the user authorship rights from the onset, it poses a lot of contention. For instance, the role of the programmer in the AI; what of instances where the programmer is more involved in the generation of the work; what if the AI has been encoded to perform the specific tasks of generating the copyrightable work; who has made a much more significant contribution (necessary arrangements) for the production of the work? All these are questions that the Copyright Act of Kenya fails to address.

The arrangements necessary made towards the production of AI-generated work are the first things that need to be assessed to decide where these rights fall. There have been proposed factors discussed by scholars that might help the courts better understand the level of the contribution accorded to the work by either the user or the programmer. Additionally, such situations are better addressed on a case-to-case basis looking at the present circumstances to determine what contributions are deemed necessary to have produced the work in question.

The UK has a similar definition of authorship in the CDPA. The courts have dealt with this matter, for instance in the Nova case, by stating that the court recognizes human involvement in computer-generated works. In light of that, the courts need to assess the level of human involvement in the work to determine where the authorship right falls. While the England and Wales High Court granted the rights to the programmer in that case, they determined that the arrangements they made in the production of the work were much more significant as compared to the user.

Australia on the other hand recognises the possibility of computer generated works however it only grants works where the author is a human being. In doing so it presents a higher standard of originality that the work is required to contain a "creative spark" or the exercise of "skill and judgment".

The programmer in an AI can range from the person who created the AI itself and left it at that or it can be the person who encoded the AI to perform particular tasks to produce copyrightable work. The former looks to suggest that the user is the author of the work even if their level of contribution ranges from merely pressing a button or typing the word "compose". The latter leaves room for analysis to see who has made much more significant contributions.

There has yet to be a case brought to the Kenyan courts to deal with authorship of AI-generated works. While the age of AI creeps at us more quickly than we can imagine, we are bound to be faced with such a situation soon within the confines of Kenya. The question that is now left is, what can we do? In the second part of this chapter, this paper has proposed recommendations that might be adopted by the Kenyan jurisdictions in better assessing where authorship rights fall in AI-generated works.

5.3. INTERVENTION

Following the research conducted in this discourse and the findings discussed in brief, the proposed interventions are as follows.

For the copyright legislation to be updated and reexamined on a regular basis to reflect new developments in technology. As AI systems grow more powerful and autonomous, and machine learning becomes more complex, the copyright protection of works created by AI will soon need to be evaluated. One of the amendments the Act can make, similar to the CDPA, is to include a definition of what computer generated work is. It can also include AI-generated work which is the main focus of this work. That would ensure explicitly that AI-generated works are protected in Kenya.

In recognizing AI-generated works, KECOBO could consider proposed amendments on what would amount to “arrangements necessary” that are made by a person in order to produce the work. In understanding this, the board together with the lawmakers and the courts would be one step closer in determining how much human involvement is needed in AI-generated work to assign authorship. This will have to be assessed on a case-to-case basis by looking at the facts presented. The answer is not always direct because the human involvement varies depending on the type of work produced.

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