

**Protection of AI-generated Products and Examination
within the Context of the European Union and Turkish Copyright
Laws**

by

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To my mother, Ayşe, and my father, Lutfi.



ABSTRACT

Since its discovery, artificial intelligence (AI) has demonstrated rapid development, and AI-based solutions have begun to play a significant role in all aspects of human life. Artificial intelligence, which can be defined as computer programs aimed at mimicking human behaviour and performing activities carried out by humans through machines, has particularly started to create works in the field of art in recent years. This has led to confusion in terms of copyright, and questions regarding whether copyright can be established on these works and the potential consequences of the decisions made have transformed into a structure that occupies intellectual property experts and lawmakers.

This study aims to examine the existence and limits of copyright protection on AI-generated works within the framework of the laws currently in practice in the European Union and Turkish Law. In this regard, firstly, the current copyright rules have been examined, the limits of human intervention in works produced by AI have been classified, and finally, efforts to determine the existence of copyright protection for AI-generated works in different situations have been presented. As it is still an unresolved dilemma, this study also includes the approaches of some countries that are not covered within the scope of the thesis and. The proposals presented have been scrutinized, considering the ethical discussions.

Keywords: *Artificial Intelligence, Intellectual Property Rights, Copyright, Work, Authorship.*

ÖZETÇE

Yapay zeka (AI) ortaya çıktığı ilk günden bu yana hızlı bir gelişim göstermiş ve yapay zeka tabanlı çözümler ile insan hayatının her alanında önemli bir rol oynamaya başlamıştır. Temelde insan davranışlarını taklit etmeyi ve insanlar tarafından gerçekleştirilen faaliyetlerin makineler aracılığı ile gerçekleştirilmesini hedefleyen bilgisayar programları olarak tanımlanabilecek olan yapay zeka, özellikle son yıllarda sanat alanında üretimler yapmaya başlamıştır. Bu durum ise telif hakları anlamında bir karmaşaya yol açmış ve özellikle bu ürünler üzerinde telif haklarının kurulup kurulamayacağı sorusu ve benimsenecek yaklaşımın muhtemel sonuçları, fikri mülkiyet hukukunu meşgul eden bir yapıya bürünmüştür.

Bu çalışmanın amacı, Avrupa Birliği ve Türk Hukukunda uygulamadaki kanunlar çerçevesinde yapay zeka tarafından yaratılan eserler üzerinde telif korumasının varlığını ve sınırlarını irdelemektir. Bu amaç doğrultusunda öncelikle mevcut telif hukuku kuralları incelenmiş, yapay zekanın ürettiği eserlerde insan müdahalesinin sınırları sınıflandırılmış ve nihayet farklı durumlarda yapay zeka üretimi eserler üzerinde telif korumasının varlığı tespit edilmeye çalışılmıştır. Henüz üzerinde uzlaşmanın sağlanamadığı bir konu olması sebebiyle işbu tez kapsamında olmayan bazı ülkelerin yaklaşımlarına da yer verilirken, sunulan öneriler etik tartışmalar da dikkate alınarak irdelenmiştir.

Anahtar Kelimeler: *Yapay Zeka, Fikri Mülkiyet Hakları, Telif Hakları, Eser, Eser Sahipliği.*

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Table of Contents

1	INTRODUCTION.....	1
1.1	THE OVERVIEW	1
1.2	PROBLEM QUESTIONS AND PURPOSE	4
1.3	SCOPE AND METHODOLOGY.....	6
2	COPYRIGHT LAW AND KEY TREATIES	9
2.1	INTELLECTUAL PROPERTY RIGHTS AND DISTINGUISHING ASPECTS FROM REAL PROPERTY RIGHTS	9
2.1.1	<i>Industrial Property Rights</i>	12
2.1.2	<i>Copyrights</i>	13
2.2	THE QUEST FOR HARMONIZATION: KEY INTERNATIONAL AGREEMENTS.....	14
2.2.1	<i>Berne Convention</i>	15
2.2.2	<i>Montevideo Agreement</i>	17
2.2.3	<i>Universal Copyright Convention</i>	18
2.2.4	<i>TRIPS Agreement</i>	18
2.2.5	<i>Rome Convention</i>	21
2.2.6	<i>WIPO Internet Treaties</i>	22
2.2.6.1	WIPO Copyright Treaty.....	22
2.2.6.2	WIPO Performances and Phonograms Treaty	23
3	TURKISH COPYRIGHT LAW.....	24
3.1	CONCEPT OF WORK.....	24
3.1.1	<i>Conditions for Considering a Product as Work</i>	26
3.1.1.1	Objective Condition	27
3.1.1.2	Subjective Condition.....	28
3.2	AUTHORSHIP	30
3.2.1	<i>Authorship Discussions over the Personality</i>	31
3.2.1.1	Natural Person.....	32
3.2.1.2	Legal Entity	34
3.2.2	<i>Rights of the Author</i>	35
3.2.2.1	Economic Rights	37
3.2.2.2	Moral Rights	37
3.3	COMPUTER PROGRAMS IN TURKISH COPYRIGHT LAW.....	38
4	THE EUROPEAN UNION COPYRIGHT LAW	42
4.1	GENERAL OVERVIEW	42
4.2	CONCEPT OF WORK.....	43
4.3	AUTHORSHIP	47
4.3.1	<i>The Necessity of a Natural Person</i>	48

4.3.2	<i>Moral and Economic Rights of the Author</i>	50
4.4	COMPUTER PROGRAMS.....	52
5	ARTIFICIAL INTELLIGENCE	55
5.1	WHAT IS ARTIFICIAL INTELLIGENCE: DEFINITION, SCOPE, AND TYPES.....	55
5.1.1	<i>Biological and Artificial Intelligence</i>	57
5.1.2	<i>Subclasses of Artificial Intelligence: Machine Learning, Deep Learning, and Data Mining</i> 59	
5.1.2.1	Machine Learning.....	60
5.1.2.2	Deep Learning.....	62
5.1.2.3	Data Mining.....	63
5.1.3	<i>Deterministic and Nondeterministic Artificial Intelligence</i>	64
5.1.4	<i>Artificial Narrow, General, and Super Intelligence</i>	65
5.1.4.1	Artificial Narrow Intelligence.....	65
5.1.4.2	Artificial General Intelligence	66
5.1.4.3	Artificial Super Intelligence.....	67
5.2	AI-GENERATED PRODUCTS.....	67
5.2.1	<i>AI-Generated Music</i>	68
5.2.2	<i>AI-generated Painting</i>	70
5.2.3	<i>AI-generated Literature</i>	71
5.3	ETHICAL CONCERNS REGARDING ARTIFICIAL INTELLIGENCE	73
6	INTERSECTION OF ARTIFICIAL INTELLIGENCE AND COPYRIGHT	77
6.1	ARTIFICIAL INTELLIGENCE WITH DIFFERENT UTILIZATION	77
6.1.1	<i>Artificial Intelligence as a Computer Program</i>	77
6.1.2	<i>Artificial Intelligence as an Assistive Tool</i>	79
6.1.3	<i>Artificial Intelligence as a Creator</i>	80
6.2	COUNTRIES' APPROACHES AND LANDMARK CASES.....	83
6.2.1	<i>Turkish Law</i>	83
6.2.2	<i>The European Union and the UK</i>	85
6.2.2.1	EU Members with Continental System.....	87
6.2.2.2	The United Kingdom.....	89
6.2.2.3	Ireland	93
6.2.3	<i>Landmark Cases from Other Countries</i>	94
6.2.3.1	The United States of America.....	94
6.2.3.2	India and Canada	96
6.2.3.3	China.....	97
7	APPROACHES TO LEGAL PROTECTION OF AI-GENERATED PRODUCTS	100
7.1	ROMANTIC SCHOOL.....	100

7.2	REFORMIST SCHOOL	102
7.2.1	<i>Electronic Personality Status</i>	103
7.2.2	<i>Legal Entity Status</i>	104
7.2.3	<i>Natural Person Status</i>	105
7.2.4	<i>Slavery Status</i>	106
7.3	MODERN SCHOOL.....	107
7.3.1	<i>Separating Originality and Authorship</i>	108
7.3.2	<i>Work Made for Hire Approach</i>	109
7.3.3	<i>Legal Regime Proposed under the European Parliament Resolution on Intellectual Property Rights for the Development of AI Technologies</i>	110
7.4	AUTHOR’S EVALUATIONS.....	112
8	CONCLUSION	116
9	REFERENCES	119

ABBREVIATIONS

AI	Artificial Intelligence
AGI	Artificial General Intelligence
ANI	Artificial Narrow Intelligence
ANN	Artificial Neural Network
Art.	Article (of a statute)
ASI	Artificial Super Intelligence
CDPA	(The United Kingdom) Copyright, Designs and Patents Act 1988
DABUS	Device for the Autonomous Bootstrapping of Unified Sentence
DL	Deep Learning
DM	Data Mining
ECJ	European Court of Justice
E.g.	Exempli Gratia (for example)
etc.	Et cetera (and others)
EU	European Union
FRT	Facial Recognition Technology
FSEK	Turkish Law on Intellectual and Artistic Works
GATT	General Agreement on Tariffs and Trade
Ibid	Ibidem (in the same source)
IBM	International Business Machines Corporation
ICJ	International Court of Justice
ILO	International Labour Office

IP	Intellectual Property
IPR	Intellectual Property Right
ML	Machine Learning
MPI	Max Planck Institute
p.	Page
PCT	Patent Cooperation Treaty
PETA	People for the Ethical Treatment of Animals
TRIPS	The Agreement on Trade-related Aspects of Intellectual Property Rights
UCC	Universal Copyright Convention
UK	United Kingdom
UNESCO	The United Nations Educational, Scientific, and Cultural Organization
US	United States
USD	United States Dollar
WCT	WIPO Copyright Treaty
WIPO	World Intellectual Property Organization
WPPT	WIPO Performances and Phonograms Treaty
WTO	World Trade Organization

1 INTRODUCTION

1.1 The Overview

Artificial Intelligence (“AI”) is a relatively new term adopted at a conference, Dartmouth College Summer Research Project on Artificial Intelligence, in Hanover, New Hampshire, in 1956.¹ Since the day AI was discovered for the first time, it has been evolving progressively, although there were periods called AI Winters when interest and funding decreased in AI research.

Contrary to general opinion, AI is not a physical object like robots but a simulation of human intelligence in machines, mainly in computer programs.² John McCarthy, one of the organizers of the Dartmouth Summer Research Project on Artificial Intelligence, describes AI as: “*It is the science and engineering of making intelligent machines, especially intelligent computer programs.*”³ Nilsson identifies AI as the activity devoted to creating intelligent machines.⁴ In its broadest sense, AI can be defined as systems that can perform functions that normally require human intelligence, such as perception, learning, development, creativity, communication, decision-making, and inference.

AI programs are widely used in prediction, classification, visualization, and data analysis in various sectors, such as health, information technologies, financial systems, online shopping sites, and transportation.⁵ According to the research conducted by McKinsey,

¹ McCarthy, J., Minsky, M. L., Rochester, N., & Shannon, C. E. (2006). A Proposal for the Dartmouth Summer Research Project on AI, August 31, 1955. AI Magazine, 27(4), 12. Retrieved July 14, 2022, from <https://doi.org/10.1609/aimag.v27i4.1904>

² Frankenfield, J. (2022, July 6). Artificial Intelligence: What It Is and How It Is Used. Investopedia. Retrieved December 21, 2022, from <https://www.investopedia.com/terms/a/artificial-intelligence-ai.asp>

³ McCarthy, J. (2007). What Is Artificial Intelligence? Retrieved January 9, 2022, from <https://www-formal.stanford.edu/jmc/whatisai.pdf>

⁴ Nilsson, N. (2010). The Quest for Artificial Intelligence: A History of Ideas and Achievements. Cambridge University Press. Retrieved January 14, 2023, from doi:10.1017/CBO9780511819346

⁵ Zorluel, M. (2019). Yapay Zeka ve Telif Hakları. Türkiye Barolar Birliği Dergisi, 2019(42), p. 308. Retrieved August 25, 2023, from <http://tbbdergisi.barobirlik.org.tr/Dergi/Dergi142/304/>

half of the respondents⁶ stated that at least one function of AI has started to be used by their companies.⁷

In the beginning, AI was working to accomplish simple tasks by comprehending and implementing the data given by humans. Sometime after, AI evolved, and the effect of human intervention decreased. After the advancement in AI technologies, the idea of the possibility of whether AI can perform without human touch has arisen. Artificial General Intelligence (“AGI”), one of the prospective AI types in terms of intelligence, is the level of AI becoming capable of performing any intellectual task that human beings can. Moreover, when the scientists revealed a hypothesis about the third type of AI, which is defined as Artificial Super Intelligence (“ASI”) or supersmart technologies that have the capacity to dominate humans, debates and concerns gained momentum.

Leaving conspiracy theories aside, these developments in the field of AI necessitated the making of regulations, especially in terms of copyright law due to emerging intellectual property rights (“IPR”) from AI-generated creations, because the rapid rise in AI has shown its influence in the field of art in recent years.

The Dancing Salesman Problem (2011), produced by a software called "The Painting Fool," is one of the essential works in this field.⁸ The Painting Fool is a software that can produce its own artwork. The creator of the Painting Fool, Dr. Simon Colton, paired this software with an emotion-detection software created by Maja Pantic. As a result, the Painting Fool gained the ability to paint pictures according to the subject's mood. The input was not user-defined, and the outcome was unimaginative.⁹

Another example of the achievement of AI in the field of art is the creation of the portrait of a fictional character named Edmond de Belamy by AI software. Portrait of Edmond de Belamy, the AI-generated portrait created through machine learning (“ML”) by a Paris-

⁶ Question was asked only of respondents who said their companies adopted AI in a given function. Respondents who answered "no change" are not included to the statistics.

⁷ QuantumBlack AI by McKinsey. (2020, November 17). The state of AI in 2020. Retrieved July 1, 2022, from <https://www.mckinsey.com/business-functions/quantumblack/our-insights/global-survey-the-state-of-ai-in-2020>

⁸ Kappala Ramsamy, G. (2012, April 1). Robot painter draws on abstract thoughts. The Guardian. Retrieved December 21, 2022, <https://www.theguardian.com/technology/2012/apr/01/robot-painter-software-painting-fool#:~:text=In%202006%20Dr%20Simon%20Colton,seriously%20as%20a%20human%20artist>.

⁹ Ibid.

based art collective known as Obvious in 2018, was sold for \$432,500 at an auction in New York.¹⁰ While the pre-auction estimations were between 7,000-10,000 USD¹¹, the portrait of Edmond de Belamy has left a mark on the history of AI and given a clue for the future of AI-generated products.

There are also examples where AI has proven itself in the music sector and resonated worldwide. The music track Not Easy was created, by Grammy-nominated British Producer Alex da Kid, via an AI program and reached fourth place on the iTunes Hot Tracks chart within 48 hours.¹² What is more, a standard user has become able to compose songs only by selecting mood, genre, and theme through AI-based companies.¹³

As can be seen, AI has started producing artistic works that have a worldwide impact. Whether these creations are works or worthless pieces of code devoid of creativity is one of the most fundamental questions of the copyright law regarding AI-generated products.

Computer programs are protected as literary works under the Berne Convention for the Protection of Literary and Artistic Works (Berne Convention) within the compliance of the Agreement on Trade-related Aspects of Intellectual Property Rights (“TRIPS”).¹⁴ Even though the TRIPS Agreement regulated computer programs’ legal status in 1994; there is no provision specifically for AI in these international agreements, yet. Compared to the Turkish authorities, The European Union (“EU”) seems more interested in this highly disputed issue. In this regard, European Commission unveiled several reports, proposals, and acts to draft a legal framework for AI, such as the Report with Recommendations to the Commission on Civil Law Rules on Robotics in 2017, the European Parliament Resolution of 20 October 2020 on Intellectual Property Rights for the Development of Artificial Intelligence Technologies, and the Artificial Intelligence

¹⁰ Obvious. (n.d.) Edmond De Belamy. [The shadows of the demons of complexity awoken by my family are haunting me.]. Retrieved July 15, 2022, from <https://obvious-art.com/portfolio/edmond-de-belamy/>

¹¹ Edmond de Belamy, from La Famille de Belamy. Christie’s. Retrieved January 9, 2022, from <https://www.christies.com/en/lot/lot-6166184>.

¹² Marr, B. (2017, January 30). Grammy-Nominee Alex Da Kid Creates Hit Record Using Machine Learning. FORBES. Retrieved July 15, 2022, from <https://www.forbes.com/sites/bernardmarr/2017/01/30/grammy-nominee-alex-da-kid-creates-hit-record-using-machine-learning/?sh=6a3743722cf9>

¹³ E.g., AIVA - The AI composing emotional soundtrack music. See <https://www.aiva.ai/>

¹⁴ The TRIPS Art.10.

Act (“AI Act”) in 2021¹⁵. The Council of the EU confirmed the general approach to the AI Act on December 6, 2022.¹⁶ The AI Act is expected to be adopted by the end of 2023 as a result of parliamentary voting and tripartite discussions (trialogue) between Member States, the Parliament, and the Commission.¹⁷ In this case, the AI Act will be the EU's first legislation regulating AI.¹⁸ Nevertheless, even if it becomes a binding legislation, there is no specific provisions for copyright protection of AI-generated products in the AI Act.

1.2 Problem Questions and Purpose

Concerning technological developments, the law, intentionally or because it is less flexible than technology, may fail to catch up with technological developments.¹⁹ This is understandable because provisions adopted by the lawmakers become binding for a broad audience and the legal regulations come with sanctions. At this point, regulatory leaders face fundamental challenges, such as protecting citizens and ensuring a fair market.²⁰ Therefore, lawmakers are expected to analyze every aspect of the prospect regulations, possible economic, political, and legal outcomes, and their effects on society from all angles. However, when it comes to the legal regulations related to technological advances, spending a long time to create a plus and minus table may cause irreversible loss of rights and violations.

¹⁵ Madiega, T. (2022, November). Digital services act. In EPRS European Parliamentary Research Service. PE 698.792. Retrieved December 21, 2022, from [https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/689357/EPRS_BRI\(2021\)689357_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/689357/EPRS_BRI(2021)689357_EN.pdf)

¹⁶ Council of the European Union. (2022, December 6). Artificial Intelligence Act: Council calls for promoting safe AI that respects fundamental rights [Press release]. Retrieved from <https://www.consilium.europa.eu/en/press/press-releases/2022/12/06/artificial-intelligence-act-council-calls-for-promoting-safe-ai-that-respects-fundamental-rights/>

¹⁷ Chatzidimitriadou, Z., Sommer, J., & von Mühlenen, E. (2022, December). Proposal for EU Artificial Intelligence Act Passes Next Level – Where Do We Stand and What’s Next? Sidley. Retrieved January 9, 2023, from <https://www.sidley.com/en/insights/newsupdates/2022/12/proposal-for-eu-artificial-intelligence-act-passes-next-level>

¹⁸ Ibid.

¹⁹ Özkaya, P., & Samet, R. (2020). Yazılım Ürünlerinin Telif Hukuku Kapsamında Korunması. Uluslararası Bilgi Güvenliği Mühendisliği Dergisi, 6(1), p.19. <https://doi.org/10.18640/ubgmd.735437>

²⁰ Eggers, W. D., Kishnani, P. K., & Turley, M. (2018, June 19). Principles for regulating emerging technologies. Deloitte. Retrieved December 15, 2022, from <https://www2.deloitte.com/us/en/insights/industry/public-sector/future-of-regulation/regulating-emerging-technology.html>.

The rapid development of AI has given rise to some legal questions that need to be answered urgently. This thesis aims to identify those questions to be answered and evaluate possible solutions in terms of copyright. Within the scope of this study, the keys to the following questions are analyzed from the perspective of Turkish and EU laws. In addition, landmark decisions issued by copyright offices and courts of different states are also included.

The Berne Convention, the first international agreement regarding copyright, has been ratified by the Member States of the EU, the EU itself and Türkiye. Therefore, both Turkish and the EU laws take the source of the copyright regulations from the Berne Convention, and provisions regarding the work and authorship show parallelism in the Turkish and the EU copyright legislation.

According to the Berne Convention, literary and artistic work means "*...every production in the literary, scientific, and artistic domain, whatever may be the mode or form of its expression...*".²¹ In line with the TRIPS Agreement Art. 10, computer programs shall be protected as literary work under the Berne Convention.²² As can be seen, there is no dispute that computer programs explicitly regulated in the Berne Convention, which the TRIPS Agreement refers to, are considered literary works and shall be protected.

Ambiguity arises when it comes to works generated by AI programs because AI can be used as a tool in some creations, but also, there are programs that allows AI to make creations with very low or without human intervention in some cases. For instance, if a data scientist uses AI for classification but runs the core business himself/herself, AI is used as a mere tool in such a case. However, the main conflict begins when an AI program creates products with a very little human contribution or without human intervention. The Dancing Salesman Problem, which was produced by the software called The Painting Fool, or the AI-generated portrait of Edmond de Belamy, which was created through an ML program, are whole different stories than using an AI program as an assistive tool.

The connection between the AI program and the person utilizing it in The Dancing Salesman Problem and the portrait of Edmond de Belamy's examples remains at a

²¹ The Berne Convention for the Protection of Literary and Artistic Works, Art. 2.

²² Computer programs, whether in source or object code, shall be protected as literary works under the Berne Convention (1971).

rudimentary level. It is not possible for the user or programmer to predict the outcome that will emerge. In this situation, AI may not be an assistive tool but the creator of the work technically. This raises the question of whether these creations, referred to as AI-generated products in this thesis, can qualify as work within the scope of Turkish and EU legislation. If so, who will be considered the author of these products? If not, what will and what should be the legal status of these products?

This master's thesis addresses the legal status of AI-generated products in Turkish and EU law, with a particular focus on the preservation of economic and moral rights associated with works that have been generated by AI. A comprehensive examination of this topic has been conducted, including a review of relevant discussions and the applicability of existing rules. In addition to these central issues, the principles of copyright law, the functioning of AI, the various types of AI, and the relationship between AI-generated products and copyright law have been examined. Finally, landmark cases from various legal systems and approaches suggested by scholars for the protection of AI-generated products have been presented.

1.3 Scope and Methodology

This study seeks to investigate the copyright protection of AI-generated products. Although this thesis is written in the field of law, elements related to AI, such as its background, working principles, and types, have also been examined for the study to make a meaningful contribution to the realm of law.

A comparative approach is adopted in this thesis, and concepts of work and authorship have been analyzed in terms of Turkish and EU law, including provisions of international agreements applicable in Türkiye and the EU, such as the Berne Convention, TRIPS Agreement, and World Intellectual Property Organization ("WIPO") Internet Treaties. The legal requirements for recognizing creations as work and for establishing authorship according to the Turkish and EU legal systems are also discussed. In terms of products created by AI, the approaches of pioneer countries and the proposals of scholars have also been examined for the purpose of conducting a comparative study.

This thesis consists of 8 chapters.

In Chapter 1, a general introduction is presented. The evolution of AI since the day it emerged, examples of AI-generated products in the field of art, and types of AI regarding

intelligence are summarized. Under the Problem Questions and Purpose subtitle, questions about the legal status of AI and AI-generated products in cases where AI works as a tool or as a creator are briefly examined.

Chapter 2 serves as a general introduction to copyright. This chapter elaborates on intellectual property rights, an umbrella concept, distinguishing aspects from real property rights, and differences between industrial property rights and copyrights. History of the fundamental international copyright agreements, the Berne Convention, Montevideo Agreement, Universal Copyright Convention (“UCC”), TRIPS Agreement, Rome Convention and WIPO Internet Treaties are also covered in this chapter.

Chapter 3 describes the legal framework in Türkiye and examines the Law on Intellectual and Artistic Works No. 5846. Core concepts such as work and authorship are studied in detail, and the author's rights and the protection of computer programs in the Law on Intellectual and Artistic Works are examined.

Chapter 4 outlines the legal framework of the EU. In this chapter, a detailed examination of copyright law is carried out, with an emphasis on authorship, work, and the protection of computer programs, also addressing the differences among EU Member States. The distinguishing aspects of the EU copyright system from the Turkish legal system regarding copyright are presented.

Chapter 5 covers AI in detail. The emergence, types, working principles, and developments of AI, processes carried out by or with the help of AI, and ethical concerns regarding AI are explained with recent examples.

In Chapter 6, AI is examined in three groups: the protection of the AI program itself, the use of AI as an assistive tool, and the role of AI as a creator. Afterwards, legal consequences are evaluated for each scenario in terms of EU and Turkish law. In addition, cases from various countries are presented regarding the legal status of AI-generated products.

In Chapter 7, the proposals presented by different countries and scholars on the protection of AI-generated products, which are still not clearly agreed upon, are examined by considering applicability and possible effects. In this chapter, the proposals suggested have been grouped under three approaches: Romantic School, Reformist School, and Modern School. Finally, the author’s evaluations regarding proposals are also included.

In Chapter 8, a comprehensive approach to the case through an inter-conceptual summary has been presented. Within the scope offered, the copyright protection over AI-generated products from the approaches of legal authorities of different countries, with a particular focus on the EU and Türkiye, is summarized.



2 COPYRIGHT LAW AND KEY TREATIES

In this section, the general characteristics of intellectual property rights, the aspects that distinguish intellectual property rights from real property rights, and the reasons why the traditional approach to property law may not be adaptable to current developments in copyright have been evaluated. The section also covers the international agreements prepared in response to the need for harmonization and protection, respectively, the Berne Convention, Montevideo Agreement, Universal Copyright Convention, TRIPS Agreement, Rome Convention, WIPO Copyright Treaty, and WIPO Performances and Phonograms Treaty.

2.1 Intellectual Property Rights and Distinguishing Aspects from Real Property Rights

Intellectual property (“IP”) refers to creations of the mind in the industrial, scientific, literary, and artistic fields, according to World Intellectual Property Organization (“WIPO”)’s definition.²³ According to another definition presented in the Turkish doctrine, IPRs are the rights that protect a creative work or effort.²⁴

IPR is an umbrella term that covers both industrial property rights and copyright. Protection regarding the IPR may be embodied in a trademark, patent, industrial design, geographical indication, or copyright.

IPRs differ from real property in terms of characteristics and legal boundaries. In real property, protection is established on a physical object.²⁵ This object might be movable property or immovable property. On the other hand, the scope of the protection of the IPRs are separated from the property it materialized on.²⁶ Due to their inherent characteristics, physical objects can only occupy a single location at a given time, while intellectual property rights, being established on intangible assets, can potentially exist in multiple locations simultaneously.²⁷ IPRs are inheritable, seizable, licensable, and

²³ WIPO What is Intellectual Property? (n.d.). Retrieved July 15, 2022, from <https://www.wipo.int/about-ip/en/>

²⁴ Kılıçoğlu, A. M. (2021). Sınai Haklarla Karşılaştırmalı Fikri Haklar. Turhan, p. 3.

²⁵ Tekinalp, Ü. (2005). Fikri Mülkiyet Hukuku, Arıkan, p. 7.

²⁶ Tekinalp, Ü. (2005). Fikri Mülkiyet Hukuku, p. 6.

²⁷ Evrensel, A. (2019). Telif Hakkı Sözleşmesi ve Hakların Devri. Seçkin, p. 21.

pawnable and can be subject to legal transactions similar to property rights, except moral rights.

Although there are no periods for protection in real property rights, intellectual property rights are under protection during the limited period set by law in principle.²⁸ For instance, a car owner remains the owner until the car is sold or destroyed. However, in IPRs, the time of protection is limited to specific periods, such as 10 years,²⁹ 20 years,³⁰ 70 years,³¹ etc. However, the protection of moral rights, one of the two types of rights arising from IP, is not limited by the duration of protection.³² Indeed, the Turkish Law on Intellectual and Artistic Works (“FSEK”) specifies that economic rights will be protected throughout the author’s life and 70 years after the death of the author but does not make a clear explanation concerning moral rights.³³ According to the Berne Convention Art. 6bis, the protection of moral rights shall be maintained at least until the expiry of the economic rights, which is 50 years from the death of the author.

IPRs are territorial in nature³⁴, whereas the protection of real property is universal. An owner of a bag is recognized as the rightful owner of that bag everywhere in the world because of the presumption of ownership in personal property, especially. Conversely, the territoriality principle shall be applied for the protection over IPRs, and IP protection will be effective in the territory of the state granting it. However, it should be noted that even though the territoriality principle governs IPRs, the multilateral agreement system has been established since the late 19th century and is aimed the preventing the loss of

²⁸ World Trade Organization. What are intellectual property rights? Retrieved January 10, 2022, from https://www.wto.org/english/tratop_e/trips_e/intell_e.htm

²⁹ Protection period for utility models is limited to 10 years and shall not be extended according to Turkish Industrial Property Act, Art. 101.

The term of protection for a registered trademark is 10 years and can be renewed for periods of ten years according to Turkish Industrial Property Act, Art. 23.

³⁰ The term of protection for patent is limited to 20 years and shall not be extended according to Turkish Industrial Property Act, Art. 101.

³¹ The term of protection shall last for the life of the author and 70 years after the death of the author according to Turkish Law on Intellectual and Artistic Works, Art. 27.

³² Tekinalp, Ü. (2005). *Fikri Mülkiyet Hukuku*, p. 165.

³³ Günay, E. (2019). *Eser Sahibinin Manevi Hakları*. (632209, Master Thesis). İstanbul Sabahattin Zaim Üniversitesi. P.28-29

³⁴ Handl, G., Zekoll, J., & Zumbansen, P. (2012). *Beyond Territoriality: Transnational Legal Authority in an Age of Globalization*. Queen Mary Studies in International Law, vol. 11.

rights that the territoriality principle may cause.³⁵ Madrid Agreement Concerning the International Registration of Marks (Madrid Agreement), Patent Cooperation Treaty (“PCT”), Hague Agreement Concerning the International Registration of Industrial Designs (Hague Agreement), Lisbon Agreement for the Protection of Appellations of Origin and their International Registration (Lisbon Agreement), Berne Convention, and TRIPS Agreement are some of the multilateral treaties that allow particular IPR to be protected in a large number of countries or regions.

One of the most distinguishing characteristics of IPRs, which concerns this study closely, is its *sui generis* structure. *Sui generis* is a Latin term, very broadly, means a special kind³⁶, unique.³⁷ Since real property emerged much earlier than IPRs, the traditional law approach was shaped according to real property. With the birth of the IPRs, a new kind of property concept has emerged that did not fully fit the traditional property law approach. For example, in IP law, conditions such as novelty, inventive step, and distinguishing one enterprise’s goods and services from another, which must be fulfilled for the relevant IP protection, are not the conditions sought for real property.³⁸

Regulations such as the periods determined by lawmakers for the protection of IPRs, registration obligation in industrial property rights for protection, which is not sought for copyrights in principle where the Berne Convention is applicable, and the provision regarding databases shall be protected as *sui generis* since they are considered as neither industrial property right nor copyright³⁹, prove that IPRs have distinguishing aspects from real property rights as well as differences within themselves. Therefore, IPR is not fully compatible with the traditional understanding of the law, and traditional approaches cannot be efficient and adequate to solve most disputes related to IPRs.

IPRs are divided into two categories: industrial property rights and copyrights. This dual division first emerged in the Berne and Paris Convention for the Protection of Industrial

³⁵ Ibid.

³⁶ Wekesa, M. (2006). What is Sui Generis System of Intellectual Property Protection? African Technology Policy Studies Network.

³⁷ Sui Generis. Meaning & Definition for UK English. Lexico Dictionaries. Retrieved July 15, 2022, from https://www.lexico.com/definition/sui_generis

³⁸ Wekesa, M. (2006). What is Sui Generis System of Intellectual Property Protection?

³⁹ Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the Legal Protection of Databases

Property (Paris Convention), where these two subgroups were separately emphasized and have been used in this way for many years.⁴⁰

2.1.1 Industrial Property Rights

Industrial property rights, one of the two subheadings of IPRs, cover patents, utility models, industrial designs, trademarks, service marks, trade names, indications of source or appellations of origin, and the repression of unfair competition according to Art. 1 of the Paris Convention. These are not in the limited number principle, and it is stated that the scope of the industrial property should be evaluated in a broad sense in the same article.

Industrial property rights grant an exclusive right to the right holder, help to distinguish an enterprise's goods and services from others and protect an invention and the right holders during the limited periods set by the laws.

The most fundamental convention regarding industrial property rights is the Paris Convention for the Protection of Industrial Property Rights, the Paris Convention shortly, dated 1883. The Paris Convention, along with the Berne Convention, is one of the conventions in which the foundations of the WIPO were laid.⁴¹

Both Türkiye and the EU Members are the signatories of the Paris Convention and agreed to regulate their domestic laws in compliance with the Paris Convention. Therefore, commonalities draw attention between Turkish Industrial Property Act No. 6769 and EU legislation regarding industrial property rights. The shared specialities defined in both legislations are distinguishing criteria of an enterprise's goods and services from the others, close relationship with the industrial or technical fields, and the registration condition to grant protection. Contrary to copyrights, industrial property rights are granted upon application by the industrial property offices in principle⁴², so the registration criterion is essential in industrial property rights.

⁴⁰ Arıkan, A. (2007). Avrupa Topluluğunda Fikri-Sınai Mülkiyet Hakları ve Son Gelişmeler. Ankara Avrupa Çalışmaları Dergisi, 7(1), p. 152.

⁴¹ Telif Hakları Genel Müdürlüğü. (n.d.). Dünya Fikri Mülkiyet Örgütü (WIPO-OMPI). Retrieved December 21, 2022, from <https://www.telifhaklari.gov.tr/Dunya-Fikri-Mulkiyet-Orgutu-WIPOOMPI>

⁴² World Intellectual Property Organization. (2004). WIPO Intellectual Property Handbook: Policy, Law and Use. WIPO Publication, Second. P.131. Retrieved December 22, 2022, from https://www.wipo.int/edocs/pubdocs/en/intproperty/489/wipo_pub_489.pdf

In principle, the protection granted by an official authority's registration document is territorial, similar to all kinds of intellectual property rights. However, making the protection multinational or multilocal is possible by registering one by one in all countries or by using the WIPO's Madrid Agreement for trademarks, PCT for patents, Hague Agreement for industrial designs, and Lisbon Agreement for geographical indications and appellations of origin rights.

2.1.2 Copyrights

*“Copyright grants the creator of an original work the exclusive rights to control, use and distribute the work for a limited period of time. Protection is granted automatically without a prior test of the quality of the original work, and it does not require any formal registration.”*⁴³ Copyright (or author's right) is interested in creations of mind and neighbour rights that are in a relationship with the creation.⁴⁴

The copyright protection covers expressions only. Meaningfully, ideas are not protected. In addition to ideas, copyright does not protect mathematical concepts, operation methods, and procedures.⁴⁵

The core concept of copyright is the “work.” For copyright protection to be granted, there must be work as it is accepted in the legal sense. Compatible with the Berne Convention, work is defined as *“Any intellectual or artistic product bearing the characteristic of its author, which is deemed a scientific and literary or musical work or work of fine arts or cinematographic work.”*⁴⁶ in FSEK Art. 1/b.

In the article, it is emphasized that a creation of mind benefits from copyright protection if it bears the characteristic of its author, is included in one of the types of intellectual and

⁴³ Comino, S., Manenti, F., Thumm, N. (2015). Joint Research Centre, Institute for Prospective Technological Studies, Intellectual property and innovation in Information and Communication Technology (ICT), Publications Office, p. 28. Retrieved January 9, 2023, from <https://data.europa.eu/doi/10.2791/37822>

⁴⁴ WIPO. (n.d.). Copyright. Retrieved July 15, 2022, from <https://www.wipo.int/copyright/en/>

⁴⁵ WIPO. (n.d.). Frequently Asked Questions: Copyright. Retrieved July 15, 2022, from https://www.wipo.int/copyright/en/faq_copyright.html

⁴⁶ All translations of the Turkish Law on Intellectual and Artistic Works no.5846 used throughout this study has been obtained from the official website of the Directorate General of Copyrights. *“The translation Parts I – III of the Law have been translated by Dr. Gül Okutan Nilsson (İstanbul Bilgi University Faculty of Law, Parts IV to VI have been translated by Dr. Feyzan Hayal Şehirli Çelik (Ankara University Faculty of Political Sciences)”*. Retrieved from <https://www.telifhaklari.gov.tr/Mevzuat-Kanunlar>

artistic works listed in the relevant articles in the FSEK and is embodied in a way that third parties can perceive.

Contrary to industrial property rights, registration is not a condition for copyright protection. The moment a work is created, the protection arises and becomes effective under a certain period according to related legislation.⁴⁷ However, there are practices for registering intellectual and artistic work in many countries.⁴⁸ Although copyright registration provides advantages in terms of demonstrating the author of the works⁴⁹ and the date of record, it should not be regulated as a necessity for protection in accordance with the Berne Convention⁵⁰ automatic protection principle.

2.2 The Quest for Harmonization: Key International Agreements

IPRs are rights that extend beyond national borders as its nature. However, as a result of the principle of territoriality, IPRs are limited to the country or region in which they were granted.⁵¹ This has led to the need for international agreements, as intellectual property rights that cross national borders require protection that also crosses national borders.⁵²

Regarding international agreements and harmonization movements in copyright, the Berne Convention, was ratified by 8 countries in 1856, is the first and the most significant international agreement. The Berne Convention lays the foundation of copyright concepts and terminology and is still in use. Other fundamental international copyrights legislations that are applicable in Türkiye and the EU are the WIPO's Internet Treaties and the TRIPS Agreement. WIPO Internet Treaties consist of two international agreements, the WIPO Copyright Treaty ("WCT") and the WIPO Performances and Phonograms Treaty ("WPPT") and regulate copyright law's digital aspects globally. The TRIPS Agreement is an agreement compatible with the information age that aims to close

⁴⁷ Erel, Ş. N. (2009). Türk Fikir ve Sanat Hukuku, Yetkin, p. 103.

⁴⁸ Gök, B. (2022). Yapay Zeka Sistemleri Tarafından Üretilen Fikri Ürünlerin Telif Hakkı. (734479, Master Thesis). İstanbul Bilgi University, p. 39.

⁴⁹ Telif Hakları Genel Müdürlüğü. (n.d.). İsteğe Bağlı Kayıt-Tescil. Retrieved January 10, 2023, from <https://www.telifhaklari.gov.tr/Istege-Bagli-KayitTescil>

⁵⁰ Gök, B. (2022). Yapay Zeka Sistemleri Tarafından Üretilen Fikri Ürünlerin Telif Hakkı, p. 39.

⁵¹ Oke, E. K. (2018). Territoriality in Intellectual Property Law: Examining the Tension between Securing Societal Goals and Treating Intellectual Property as an Investment Asset. 15(2). SCRIPTed 313 <https://script-ed.org/?p=3528> DOI: 10.2966/scip.150218.313

⁵² Güneş, İ. (2022). Uygulamada Fikir ve Sanat Eserleri Hukuku, Seçkin, p. 23.

the gap between the countries that provide adequate IP protection and countries that do not.⁵³

In addition, the Rome Convention, which is the first international regulation of neighbouring rights in copyright law, the Montevideo Agreement, which was signed by the South American countries that avoided joining the Berne Convention, and the UCC, which was prepared with the aim of establishing a bridge in terms of copyright law between the countries of America and Europe, are other significant international agreements in terms of copyright law.

2.2.1 Berne Convention

The Berne Convention, or the Berne Convention for the Protection of Literary and Artistic Works, is the first international agreement regarding copyright. Since it was accepted for the first time in 1886, the Berne Convention was modified several times to keep up with the developments in copyright.⁵⁴ Besides being the first international agreement in the field of copyright, the Berne Convention maintains its importance because it is a comprehensive agreement that establishes minimum standards, specifies the types of work, gives copyright protection to the authors, and regulates many more areas of copyright.

Before the Berne Convention was established, states were protecting copyrights and author's rights by their domestic laws or were not protected at all. Even if states regulated copyright provisions in their domestic laws, they could not intervene in situations outside the country. When authors were located outside of the country, or a work was created outside of the country, the copyright protection over the work or the author's right was left to another country's initiative.⁵⁵ Therefore, the need for a multinational or multilocal union arose. Thereupon, the first version of the Berne Convention was signed by Belgium, France, Germany, Haiti, Italy, Spain, Tunisia, and the United

⁵³ Medin, B. (2017). Dijitalleşen Dünyada Fikri Haklar Sorunu. Kırıkkale Üniversitesi Sosyal Bilimler Dergisi, 7(2), p. 58.

⁵⁴ All amendments of the Berne Convention: Berne Convention (1886), completed at Paris (1896), revised at Berlin (1908), completed at Berne (1914), revised at Rome (1928), at Brussels (1948), at Stockholm (1967) and at Paris (1971), and amended in 1979 (Berne Union).

⁵⁵ Kurt, K. (2021). Bern Sözleşmesi ve Türkiye'nin Katılım Süreci. Atatürk Araştırma Merkezi Dergisi, 37(104), p. 12. DOI: 10.33419/aamd.1015901

Kingdom in 1886. As of 2022, the Berne Convention has been signed and ratified by 181 states worldwide.⁵⁶

The first article of the Berne Convention declared that a Union consisting of signatory countries had been formed. Accordingly, the countries party to the Berne Convention constitute the Berne Union. It is regulated that the Convention will provide protection to the authors who are nationals of the Union members for their work and authors who are not nationals of one of the Union members for their works if their works were first published in member countries or simultaneously in a member and non-member country of the Union. In addition, it is stipulated in the Berne Convention that some issues will be regulated by the domestic laws of the Union members.

In Art. 2 of the Berne Convention, the types of literary and artistic works are regulated, and it is stated that expressions such as “...books, pamphlets and other writings; lectures, addresses, sermons and other works of the same nature; dramatic or dramatico-musical works; choreographic works and entertainments in dumb show; musical compositions with or without words; cinematographic works to which are assimilated works expressed by a process analogous to cinematography; works of drawing, painting, architecture, sculpture, engraving and lithography; photographic works to which are assimilated works expressed by a process analogous to photography; works of applied art; illustrations, maps, plans, sketches and three-dimensional works relative to geography, topography, architecture or science.” are literary and artistic works according to this convention, and shall be protected.

The Berne Convention has three main principles regulated under Article 5. The first principle is the national treatment. According to this principle, a member state should grant nationals of other Union members the same rights as they give to their own nationals.⁵⁷ So, a book written in Türkiye by a Turkish citizen enjoys the same protection in Germany as a book written in Germany by a German citizen.

⁵⁶ Full list of the signatory countries can be found at: https://www.wipo.int/wipolex/en/treaties/ShowResults?search_what=C&treaty_id=15

⁵⁷ Berkman Klein Center for Internet & Society at Harvard University. (n.d.). Module 2: The International Framework. Retrieved July 15, 2022, from https://cyber.harvard.edu/copyrightforlibrarians/Module_2:_The_International_Framework#Berne_Convention

The second principle is automatic protection which means Union members should not require formalities regarding copyright protection for citizens of other members.⁵⁸ According to this principle, an author does not have to register the work or notify another Union member to enjoy copyright protection.

The third principle is the independence of protection principle. As set out in the Berne Convention, protection is independent of the existence of protection in the country where the work originated. According to this principle, foreign works shall be treated as domestic works, and member states shall provide the same protection as it accords domestic works.⁵⁹ This principle is applied even when foreign works are not protected by the law where they originated.⁶⁰ For instance, a song composed by an Italian in Italy which does not have protection under Italian law shall be protected when used in Belgium if it meets the conditions required for Belgian Law.

Besides these principles, one of the fundamental aims of the Berne Convention is to establish minimum standards that will be effective for all Union members. Accordingly, the provisions regulated in the Convention are minimum standards to be provided by all Union members to their nationals and nationals of other members. Nevertheless, Union members are allowed to expand the scope of this protection as long as they comply with the principles of national treatment, automatic protection, and independence of protection. In this context, even though the Berne Convention regulates the duration of protection as the author's lifetime and 50 years after the author's death⁶¹, the Turkish and the EU laws preferred to extend this period to 70 years.

2.2.2 Montevideo Agreement

The Montevideo Agreement of 1889 was signed by seven South American countries⁶²: Argentina, Bolivia, Brazil, Paraguay, Peru, Uruguay, and Chile. The purpose of the Montevideo Agreement was to ensure that the rights of the authors of intellectual and

⁵⁸ Ibid.

⁵⁹ Ibid.

⁶⁰ Ibid.

⁶¹ The Berne Convention, Art. 7.

⁶² Öztrak, İ. (1970). Fikir ve Sanat Eserleri Üzerindeki Hakların Korunması Yönünden Pozitif Hukuktaki Tarihi Gelişme. Ankara Üniversitesi SBF Dergisi, 25(03), p. 3. Retrieved from https://doi.org/10.1501/SBFder_0000001239

artistic works were mutually protected in contracting states.⁶³ The South American countries refrained from participating in the Berne Convention due to their differing legal approaches, and instead, they opted to implement the Montevideo Agreement.⁶⁴ The United States (“US”) did not participate in the Berne Convention or the Montevideo Agreement.

2.2.3 Universal Copyright Convention

At the beginning of the 19th century, two distinct approaches towards the protection of IPRs emerged, with South American countries adhering to the principles outlined in the Montevideo Agreement on one side and a group of other countries adhering to the principles outlined in the Berne Convention on the other.⁶⁵ In order to reconcile these differing viewpoints and establish a universal understanding of copyright, the Universal Copyright Convention (“UCC”) was devised to connect the two approaches.⁶⁶

The UCC was signed in Switzerland under the leadership of UNESCO in 1952. Even though the scope of the protection is narrower than the Berne Convention, the importance of this convention is its bridge role between American continent countries and European countries.⁶⁷ Both EU Members and the US are the signatories of the UCC, whereas Türkiye is not a party.

2.2.4 TRIPS Agreement

One of the most effective international agreements regarding IPRs, the TRIPS Agreement, was adopted as an annex to the establishing agreement of the World Trade Organization (“WTO”) during the Uruguay Round of the General Agreement on Tariffs and Trade (“GATT”) in 1994 and came into effect in 1995.⁶⁸ TRIPS Agreement deals

⁶³ Ibid.

⁶⁴ Gök, B. (2022). Yapay Zeka Sistemleri Tarafından Üretilen Fikri Ürünlerin Telif Hakkı, p. 41.

⁶⁵ Öztrak, İ. (1970). Fikir ve Sanat Eserleri Üzerindeki Hakların Korunması Yönünden Pozitif Hukuktaki Tarihi Gelişme, p.4.

⁶⁶ Sarmaşık, J. (1995). Radyo ve Televizyon Yayıncılığında Telif Hakları ve Komşu Hakların Korunması. Marmara İletişim Dergisi, 9, p. 165.

⁶⁷ Samandi, R. (2020). Türk Fikir ve Sanat Hukukunda Eser ve Eser Sahibi. (620254, Master’s Thesis). Ankara University. P. 14

⁶⁸ United Nations. (2010). Training Module on the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). United Nations Publication. Retrieved January 25, 2023, from <https://digitallibrary.un.org/record/681730>

with all types of IPRs, including trademarks, patents, industrial designs, copyrights, and related rights. Both the EU and Türkiye adopted the TRIPS Agreement as a part of the package provided by the WTO.⁶⁹

The TRIPS Agreement aims to eliminate discrimination in terms of the protection of IPRs among the member states to provide developments and comprehensive protection worldwide. Therefore, some fundamental principles, such as national treatment and most favoured nation principles under Part I, General Provisions and Basic Principles, are regulated in detail.

According to the national treatment principle regulated in Article 3 of the TRIPS: *“Each Member shall accord to the nationals of other Members treatment no less favourable than that it accords to its own nationals with regard to the protection (3) of intellectual property, subject to the exceptions already provided in, respectively, the Paris Convention (1967), the Berne Convention (1971), the Rome Convention or the Treaty on Intellectual Property in Respect of Integrated Circuits.”*

With the Most Favoured Nation Treatment, TRIPS aimed to prohibit discrimination between the Member States. According to Article 4 of the TRIPS: *“With regard to the protection of intellectual property, any advantage, favour, privilege or immunity granted by a Member to the nationals of any other country shall be accorded immediately and unconditionally to the nationals of all other Members.”*

The development level, economic values arising from intellectual property rights, the scope of intangible assets, and the importance of the IPRs may differ from country to country. However, in a globalizing world, citizens with similar IP protection will provide legal security for authors and pave the way for advances in technology and intellectual property. Therefore, TRIPS adopts the minimum standard principle and equality approach similar to the Berne Convention. The TRIPS Agreement states that provisions set by this

⁶⁹According to WTO’s official websites: All the WTO agreements (except for a couple of “plurilateral” agreements) apply to all WTO members. The members each accepted all the agreements as a single package with a single signature — making it, in the jargon, a “single undertaking”. See: https://www.wto.org/english/tratop_e/trips_e/tripfq_e.htm

Agreement refer to minimum standards, and no countries shall limit these with any formalities or prohibitions but may extend them.

Although almost all IPRs related to international agreements have been established for supranational protection and harmonization, the most significant feature that distinguishes the TRIPS from other conventions is its enforceability capacity. As the TRIPS is a WTO agreement, a violation committed by a Member may be subject to trade sanctions.⁷⁰ In case of an infringement, members shall settle it using the new WTO dispute resolution procedures.⁷¹

It is important to state that other conventions have been widely criticized due to lack of enforcement capability, and in fact, this disapprobation is not groundless. Although the International Court of Justice (“ICJ”) has been designated as the competent authority in case of violation against the provisions held in the Berne Convention, not a single case has been brought to the ICJ so far. It is clear proof of the dysfunction of this institution from the perspective of signatories of the Berne Convention regarding copyright-related disputes, whereas the TRIPS is accepted as an enforceable agreement by its nature upon all WTO members.

On the other hand, the TRIPS Agreement contains references to the substantive provisions of the Paris and Berne Conventions, and the TRIPS members shall comply with the substantive provisions even if they are not parties to these Conventions. In this regard, WTO dispute resolution procedures are also applicable for the violations of the Berne and Paris Conventions.⁷² However, the criticism regarding the enforceability capacity of the competent authority regulated in the Berne Convention remains valid in regard to states that are not party to the TRIPS Agreement.

⁷⁰ Helvacioğlu, A. D. (2005). The Copyright Protection on the Internet in the European Union Law. (190568, Doctoral Dissertation). Marmara University. P. 22.

⁷¹ Kumagai, K. (2008). Introduction to TRIPS Agreement. Japan Patent Office Asia-Pacific Industrial Property Center, JIII. p. 42. Retrieved July 15, 2022, from https://www.jpo.go.jp/e/news/kokusai/developing/training/textbook/document/index/TRIPs_Agreement.pdf

⁷² Ibid, p. 11.

Since the main point of this thesis is understanding the copyright protection over AI-generated products, if any, it is essential to emphasize article 10 of TRIPS. According to article 10 of the TRIPS Agreement:

“1. Computer programs, whether in source or object code, shall be protected as literary works under the Berne Convention (1971).

2. Compilations of data or other material, whether in machine readable or other form, which by reason of the selection or arrangement of their contents constitute intellectual creations shall be protected as such. Such protection, which shall not extend to the data or material itself, shall be without prejudice to any copyright subsisting in the data or material itself.”

With this article, computer programs and compilations of data or other material have gained copyright protection as literary works, which is regulated under the Berne Convention Art. 2. Even though providing computer programs copyright protection is an important development, there is no provision regarding AI in any article of the TRIPS Agreement. Therefore, the TRIPS Agreement is insufficient to resolve the debates on AI-generated products regarding copyright law and meet the current needs.

2.2.5 Rome Convention

Rome Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations (“Rome Convention”) is the first international convention that secures copyright protection for performers, producers of phonograms, and broadcasting organizations. The WIPO, the International Labour Organization (“ILO”), and UNESCO are jointly responsible for the maintenance of the Convention.⁷³

Even though Berne Convention deals with copyrights specifically, it does not regulate the rights of the performers or producers.⁷⁴ With the Rome Convention, copyright protection is granted to individuals such as performers and producers of phonograms and entities such as broadcasting organizations who are not the author of the main work but the

⁷³ Telif Hakları Genel Müdürlüğü. (n.d.). İcracı Sanatçıları Fonogram Yapımcıları ve Yayın Kuruluşlarının Korunmasına Dair Roma Sözleşmesi. Retrieved December 21, 2022, from <https://www.telifhaklari.gov.tr/Roma-Sozlesmesi#:~:text=26%20Ekim%201961%20tarihinde%20Roma,asgari%20standartlar%C4%B1n%20tan%C4%B1nd%C4%B1%C4%9F%C4%B1%20ilk%20s%C3%B6zle%C5%9Fmedir.>

⁷⁴ Güneş, İ. (2022). Uygulamada Fikir ve Sanat Eserleri Hukuku, p. 28.

neighbours having close relationships with the work. These rights are also called related rights since they are born upon the permission of the author of the main work.⁷⁵

2.2.6 WIPO Internet Treaties

Aware of the technological advances and their close relationship with copyrights, WIPO enacted regulations shaping copyrights. In this context, the WIPO issued two treaties, WIPO Copyright Treaty (“WCT”) and WIPO Performances and Phonogram Treaty (“WPPT”), which are known together as Internet Treaties. They aim to secure digital networks and prevent unauthorized access and use of creative works in the digital environment.

2.2.6.1 WIPO Copyright Treaty

The WCT was established as a special agreement under the Berne Convention in 1996 and came into force in 2002.⁷⁶ The WCT regulates copyright protection over computer programs and compilations of data or other material (databases) in the digital environment. According to this treaty, computer programs and compilations of data or other material in any form shall enjoy copyright protection.⁷⁷ Regarding the type of copyright, the WCT refers to the Berne Convention and states that computer programs are protected as literary works.

The WCT contains provisions not only for the protection of work but also for the rights of its author. Since the WCT is a special agreement under the Berne Convention; it preserves the conditions regulated in the Berne Convention. Also, it grants three additional rights to the authors: the right of distribution, the right of rental, and a broader right of communication to the public.⁷⁸

The three-step test, which is considered as the condition for states to make limitations in their domestic laws regarding copyright, has also been established in the WCT⁷⁹. A

⁷⁵ Ibid.

⁷⁶ WIPO. (n.d). Summary of the WIPO Copyright Treaty (WCT) (1996). Retrieved July 15, 2022, from https://www.wipo.int/treaties/en/ip/wct/summary_wct.html

⁷⁷ WCT Art. 4.

⁷⁸ WCT Art. 6, Art. 7, Art. 8.

⁷⁹ Schonwetter, T. (2006). The three-step test within the copyright system. Retrieved January 15, 2023, from <http://pcf4.dec.uwi.edu/viewpaper.php?id=58&print=1>

limitation or exception should meet three criteria, also known as the three-step test, to make the extension applicable to the digital environment possible. In terms of WCT, the first condition is that the duration of the copyright protection should be at least 50 years, as it is ruled in the Berne Convention. Secondly, no formalities shall be required to enjoy a right or protection provided in the WCT. And finally, in order to prevent the circumvention of effective technological measures that authors use to exercise their rights under this Treaty or the Berne Convention and that limit acts in relation to their works that are not authorized by the authors concerned or permitted by law, the Contracting Parties shall ensure adequate legal safeguards and efficient judicial remedies.

Since the subject of this thesis is the examination of AI-generated products' legal status in terms of copyright law and all AI-related processes are carried out in the digital environment, the WCT, which deals with the copyrights of the works in the digital environment, stands in a very important position.

2.2.6.2 WIPO Performances and Phonograms Treaty

The WPPT, one of the Internet Treaties issued by the WIPO, regulates the rights of the performers and producers of phonograms, especially in digital environments.⁸⁰ In the treaty, producers of phonograms are granted protection regarding economic rights such as the right to reproduction, the right to distribution, the right to rental, and the right to make them available. Besides, the Treaty obliged contracting parties to provide legal remedies against the circumventions of technological measures used by performers or phonogram producers.⁸¹

It is important to note that the majority of the international agreements presented were concluded in the late 19th century and mid-20th century. Although AI emerged in the 1950s, it experienced its major breakthroughs in the 2000s. Therefore, these international agreements are shaped by approaches at least a century old and may not be sufficient to meet the needs of today. As a result, it is a reality that these agreements, which do not contain a single provision related to AI, do not have a room for debate on the existence of copyright in AI-generated products.

⁸⁰ WIPO. (n.d.). Summary of the WIPO Performances and Phonograms Treaty (WPPT) (1996). Retrieved July 15, 2022, from https://www.wipo.int/treaties/en/ip/wppt/summary_wppt.html

⁸¹ Ibid.

3 TURKISH COPYRIGHT LAW

The Law on Intellectual and Artistic Works No. 5846, the FSEK, which entered into force in 1952 with the harmonization efforts of Türkiye to the Berne Convention as a result of the Lausanne Peace Treaty⁸², is the law that is still in effect in Türkiye for copyright.

In this section, copyright is analyzed from a Turkish legal perspective, and examinations are conducted in accordance with the FSEK currently in force. The first part of the chapter elaborates on the concept of work and examines the conditions to be fulfilled for work to occur. In the continuation of the chapter, the concept of authorship is examined in detail, with particular emphasis on the contentious issue of the characteristic of the author, which is addressed through both doctrine and judicial precedents. After discussing the natural person and legal entities' eligibility for authorship, the economic and moral rights of the author are explained. Finally, how computer programs are regulated under the FSEK, which is closely related to the subject matter of this thesis, is examined.

3.1 Concept of Work

The core concept in the FSEK is “work.” For the provisions of this law to find an application area, there must be work as it is accepted in the law. According to the FSEK Art. 1/b, work is defined as “*Any intellectual or artistic product bearing the characteristic of its author, which is deemed a scientific and literary or musical work or work of fine arts or cinematographic work.*”. Accordingly, a creation of mind benefits from copyright protection if it bears the characteristic of its author and is included in one of the types of intellectual and artistic works listed in the FSEK, namely, Literary and Scientific Works, Musical Works, Works of Fine Art, and Cinematographic Works.

Although the definition of work has been presented in the FSEK, the definition predominantly outlines the conditions for being considered a work, leaving the interpretation of the concept to be determined through the enumeration of intellectual creations accepted and not accepted as works. The framework of the work has been shaped by the studies carried out in the doctrine and the jurisprudence of the Turkish Court of Cassation.

⁸² Kurt, K. (2021). Bern Sözleşmesi ve Türkiye’nin Katılım Süreci, p. 16.

In the doctrine, various scholars have defined the work. Şafak Erel defines the work as the product of a creative intellectual effort rather than a repetition of existing or known ideas, and according to Erel, the determining factor for the creative work is the specialties that root in the characteristics of its author.⁸³ According to Mustafa Ateş, work is the result obtained from a person's intellectual activities that is valuable in the legal sense.⁸⁴

Ünal Tekinalp, on the other hand, evaluates the concept of work with the conditions that should be met instead of giving a definition. According to Tekinalp, there are 4 criteria to be considered as work and protection: 1. Bearing the characteristics of its author, 2. Embodiment in a manner that reflects the author's characteristics, 3. Being included in one of the work types listed in the FSEK, and 4. Being a product of an intellectual effort.⁸⁵

Tekinalp evaluates the characteristics of the author's condition in relation to the expression (style). According to Tekinalp, expression (style) encompasses creativity and refers an individual and subjective concept. Moreover, originality and novelty should not be considered prerequisites for fulfilling the bearing the characteristics of the author condition. Instead, it is a concept that refers to being beyond ordinary, containing a certain level of creativity and style.⁸⁶

According to Prof. Dr. Ernest Eduard Hirsch, who served as a precursor in the preparation of FSEK, only intellectual products that cannot be created by everyone are worthy of copyright protection, and work should be the product of a creative effort.⁸⁷ This view has been adopted by many other scholars as well. For an intellectual product to be considered as work has been associated with the concepts, such as being not ordinary by Tekinalp⁸⁸, enriching the culture and being creative by Erel⁸⁹, and being different from the existing and with the concept of intellectual productivity (*Leistung*) by Ayiter⁹⁰. These concepts have also been examined in more detail under Section 3.1.1.2. Subjective Condition.

⁸³ Erel, Ş. N. (2009). Türk Fikir ve Sanat Hukuku, p. 51.

⁸⁴ Ateş, M. (2007). Fikri Hukukta Eser, Turhan, p. 26.

⁸⁵ Tekinalp, Ü. (2005). Fikri Mülkiyet Hukuku, p. 97.

⁸⁶ Ibid, p. 99.

⁸⁷ Hirsch, E. E. (1943). Hukuki Bakımdan Fikri Say. İstanbul Üniversitesi Yayınları, p. 12.

⁸⁸ Tekinalp, Ü. (2005). Fikri Mülkiyet Hukuku, p. 101.

⁸⁹ Erel, Ş. N. (2009). Türk Fikir ve Sanat Hukuku, p. 51.

⁹⁰ Ayiter, N. (1981). Hukukta Fikir ve San'at Ürünleri, Sevinç Matbaası, p. 44.

In copyright law, the protected value is not a tangible object or physical asset but rather an abstract concept. However, it does not mean that ideas and thoughts are copyrightable. According to the FSEK, a mere thought or idea is not enough to be considered a work.⁹¹ The protection is not about the idea but the way the idea is presented. Therefore, ideas that are not embodied in a specific form are not protected.⁹² The intellectual activity must have a tangible medium of expression that can be perceived by third parties for copyright protection to find an application area.⁹³ For an intellectual product to be considered work, it must be expressed in a way that can be perceived by people other than the person who created it.⁹⁴ Accordingly, copyright protection on a painting starts with implementing it on a canvas, not imagining it or explaining the details of imagination. Moreover, methods, mathematical concepts, and products that do not bear the author's characteristics are excluded from copyright protection.

For protection, it is not necessary for work to be completed, but it still needs to have reached a certain level. Although the evaluation should be made case by case, the existence of a sketch or draft or reaching a degree where the author's characteristics can be traced are some conditions that can be used.⁹⁵ For example, a book that is halfway completed may be protected as a work but completing only one page of a whole book may not be necessary for the copyright protection. However, even a single line written by a famous poet can be considered a work.⁹⁶ Therefore, whether a piece of intellectual product is considered work shall determine case by case by the courts.

3.1.1 Conditions for Considering a Product as Work

In order for a product to be considered work in the FSEK, it must be included in one of the types of works listed in the FSEK, should be embodied in a way that can be perceived by third parties and shall bear the characteristics of the author.

⁹¹ Kaynak Balta, B. (2021). Fikir ve Sanat Eserleri Kanunu Kapsamında Eser Kavramı ve Yapay Zeka Ürünleri. Seçkin, p. 32.

⁹² Tekinalp, Ü. (2005) Fikri Mülkiyet Hukuku, p. 102.

⁹³ Koç, S. & Kaynak, S. (2015). Telif Hakları Hukuku'nun Yeni Macerası: Sosyal Medya. Folklor/Edebiyat, 21(83), p. 392.

⁹⁴ Ateş, M. (2007). Fikri Hukukta Eser, p. 32.

⁹⁵ Tekinalp, Ü. (2005) Fikri Mülkiyet Hukuku, p. 102.

⁹⁶ Ibid.

If a creation does not meet all three conditions simultaneously, it will not be able to benefit the copyright protection under the FSEK. This is also stated in the decisions of the Turkish Court of Cassation. In a decision dated 2007, The Court of Cassation ruled that to establish protection over an intellectual work in the sense of the FSEK, the work should carry the characteristics of the author (subjective condition) and should be included in one of the work types listed in the FSEK (objective condition).⁹⁷ In another decision, the Court of Cassation Assembly of Civil Chambers stated that an intellectual product to be accepted as a work in the sense of the FSEK must be included in one of the works listed in the FSEK and must be embodied with the characteristics of its author.⁹⁸

3.1.1.1 Objective Condition

Pursuant to the objective condition, for being considered a work is to be included in one of the types of intellectual and artistic works specified in the FSEK. In the relevant articles, work categories are counted one by one in accordance with the *numerus clausus* principle.⁹⁹ The types of intellectual and artistic works listed in the FSEK consist of four groups; Literary and Scientific Works, Musical Works, Works of Fine Arts, and Cinematographic Works. On the other hand, the *numerus clausus* principle shall not be applicable when increasing the examples that fall into one of the work categories.¹⁰⁰ For instance, literary and scientific works are defined as “*Works that are expressed by language and writing in any form, and computer programs expressed in any form together with their preparatory designs, provided that the same leads to a computer program at the next stage.*” in the Art. 2 of the FSEK. This and the following articles of the law leave room for increasing the number of examples of the work under the given conditions in the relevant articles.

⁹⁷ Güneş, İ. (2022). Uygulamada Fikir ve Sanat Eserleri Hukuku, p. 56. The relevant case no. Turkish Court of Cassation, 11. HD, E. 2006/934 K. 2007/4555 (www.lexpera.com.tr).

⁹⁸ Turkish Court of Cassation Assembly of Civil Chambers HGK, E. 2019/474 K.2020/26: “*...In order to be able to refer to a work in terms of FSEK, certain conditions must be met. Indeed, for an intellectual product to be recognized as a work in terms of FSEK, in addition to embodying the characteristics of its author, it must also belong to one of the groups of works recognized in FSEK.*” (www.lexpera.com.tr)

Side note: All the translations of the decisions given by the Turkish Court of Cassation are made by the author.

⁹⁹ Tekinalp, Ü. (2005) Fikri Mülkiyet Hukuku, p. 107.

¹⁰⁰ Ibid.

In addition to the main four groups, Adaptations and Collections are regulated in Art. 6 of the FSEK, and if an adaptation or collection meets the conditions such as originality and being in connection with the original work, it benefits from the copyright protection within the scope of FSEK.¹⁰¹

A work may fall under only one of the aforementioned works categories or more than one. For instance, a song with lyrics can be protected as a musical work, and also the lyrics can be protected as a literary and scientific work.

3.1.1.2 Subjective Condition

In article 1/B of the FSEK, the expression “bearing the characteristic of its author” is clearly included when defining the work. Hence, it is one of the prerequisites for being considered a work. On the other hand, the definition of the characteristic of the author is not explicit, and there is no agreed definition in the doctrine, but various authors have clarified the concept.

Hirsch states that the characteristic of the author manifests itself in works that cannot be created by everyone, have a certain level of creativity, and enriches the culture.¹⁰² According to Hirsch, if a product can be produced at a level that can be achieved by everyone, it lacks characteristics and is therefore not beneficial for society and not worthy of protection.¹⁰³

Ayiter, similar to Hirsch, adopts the idea that a work should not be producible by everyone and should be a product of creative intellectual activity and associates the characteristics of the author concept with intellectual productivity (*Leistung*). According to Ayiter, a product that can be producible by anyone mentioned by Hirsch does not surpass the level of mental productivity and does not meet the bearing of the characteristics of the author condition.¹⁰⁴

Halil Arslanlı, on the other hand, suggests that the approach suggested by Hirsch is excessively hard to fulfil, stating that creative intellectual works and products of

¹⁰¹ Tekerci, U. (2020). İşlenme Eser Kavramı ve Çeşitleri. Journal of Intellectual Property and Competition Law. Ankara Bar Association. 22(2).

¹⁰² Hirsch, E. E. (1943). Hukuki Bakımdan Fikri Say, p. 12.

¹⁰³ Ibid.

¹⁰⁴ Ayiter, N. (1981). Hukukta Fikir ve San’at Ürünleri, p. 44.

imagination are rarely encountered in real life. Arguing that the existence of these conditions would significantly narrow the scope of the protection, Arslanlı instead defines the bearing the characteristics of the author condition with the term relative independence (*nisbi istiklal*).¹⁰⁵ By citing the adaptations as an example, noting that the elements that bear the characteristics of the author in adaptations are considerably minimal, yet they still benefit from the protection.¹⁰⁶

Tekinalp's essential approach regarding bearing the characteristic of the author condition manifested in expression and style. According to Tekinalp, expression (style) is an individual and subjective concept, and every work has its own language (style).¹⁰⁷ Indeed, well-known directors such as Stanley Kubrick, Quentin Tarantino, Alfred Hitchcock, and Tim Burton have their distinctive styles, and it would be not difficult to predict the director when watching their films without knowing who directed them. Tekinalp approaches the work from this perspective. Additionally, he emphasizes that originality and uniqueness should be expected from masters, and looking for these conditions in an average work represents a narrow interpretation. Instead, he associates the concept of bearing the characteristic of the author with not being ordinary and having a certain level of creativity.¹⁰⁸

Erel defines the concept with expressions such as being a product of the independent intellectual activity, carrying the aspects of its author and reflecting the author's creative power. According to Erel, creativity should be evaluated as creating something different than what already exists, and absolute originality should not be expected. Furthermore, as a rule, the author's intention does not play a role in determining the fulfilment of the condition.¹⁰⁹ Even if the author has not intended to create the work in that manner, the work enjoys copyright protection. There has been extensive debate in the doctrine about whether the element of bearing the author's characteristics should be in form or substance;

¹⁰⁵ Arslanlı, H. (1954). Fikri Hukuk Dersleri. İstanbul Üniversitesi Yayınları, p. 7.

¹⁰⁶ Ibid.

¹⁰⁷ Tekinalp, Ü. (2005) Fikri Mülkiyet Hukuku, p. 100.

¹⁰⁸ Ibid, p. 101.

¹⁰⁹ Erel, Ş. N. (2009). Türk Fikir ve Sanat Hukuku. P. 53.

according to Erel, its manifestation in form is sufficient.¹¹⁰ This is because copyright protection safeguards not ideas but their embodied forms and modes of expression.

Yarsuvat has evaluated the concept of characteristics of the author in relation to originality and argued that originality manifests itself in different ways in different groups of works.¹¹¹ Ateş also suggest that the characteristic of the author means being not ordinary and having a certain level of originality, and each work category has to be evaluated differently to detect the originality condition.¹¹²

Turkish Court of Cassation has emphasized the importance of creativity while examining the characteristic of the author condition in a decision and concluded that work should not be ordinary and have a certain level of creativity to meet the referred condition.¹¹³

As can be seen, although there is no consensus on the meaning of the concept of bearing the characteristic of the author in the doctrine, there is a common expectation that can be deduced from the definitions. Accordingly, the characteristic of the author is a concept that reflects the specialties attributable to the author and expresses a certain level of creativity. This creativity helps to distinguish each work from others and reflects a certain level of creativity born by the author's intellectual activity. What is stated with this idea is not that it is a first-time creation and purely original work but that the work should not be ordinary.¹¹⁴

3.2 Authorship

The second part of the FSEK is devoted to the concept of authorship. According to Art. 8 of the FSEK, "The author of a work is the person who has created it.". However, the FSEK does not use the word "person" in the original text written in Turkish. According

¹¹⁰ Ibid, p. 54.

¹¹¹ Güneş, İ., (2022). Uygulamada Fikir ve Sanat Eserleri Hukuku, p. 64.

¹¹² Ateş, M. (2007). Fikri Hukukta Eser, p. 78.

¹¹³ Turkish Court of Cassation 11. HD, E. 2006/7694 K. 2007/10079. "...The most important element that distinguishes an intellectual effort from others and makes it eligible for protection as a work is that it must have taken a shape that reflects the individuality of its author. Certainly, the idea that "individuality" must necessarily entail a high level of creativity and originality cannot be adopted through a narrow interpretation. However, on the other hand, the broad interpretation of "individuality" should not be used as a means of attributing this quality to products that do not qualify as works." (www.lexpera.com.tr)

¹¹⁴ Uslu, R. (2019). Alıntıda Hukuka Uygunluk Kriterleri. Ankara Üni. Hukuk Fak. Dergisi, 68(4), p. 917.

to the original version of the article in Turkish, the direct translation would be “The author of a work is the one who has created it.”.

In the following paragraphs of the same article, the law states that the person who created the adaptation or collection is the author of this work. The copyright protection over an adaptation or collection is independent of the original work. For example, although the author of the original version of a translated work is still the author of the work, the author of the work mentioned in the second paragraph of the FSEK expresses the authorship of the translated work.

The last paragraph of Art. 8 regulates joint authorship regarding cinematographic works. According to this article, the director, the composer of the original music, the scriptwriter, and the dialogue writer are the joint authors of the work. The legal outcome of the joint authorship is explained in the following article, and if it is possible to divide the final work into parts, each joint author will be the author of the part they have created.¹¹⁵ In case of the existence of a collectively created and inseparable work, the provisions of an ordinary company will be applied to the authors of the work.¹¹⁶ In both cases, separable and inseparable work, the participation of all authors is sought for the modification or publication of the work unless the parties agree otherwise. In case of non-participation without a valid reason, the court may give permission. The FSEK regulates that this practice will also be applied to exercising economic rights.

The creation is deemed sufficient for the work to arise. Unlike other IPRs, such as trademarks or patents, no condition for registration is stipulated for copyright protection.¹¹⁷ Regarding copyrights, registration only means proof and does not affect the acquisition of the right.

3.2.1 Authorship Discussions over the Personality

A salient point of contention in discussions on the topic of authorship is the disagreement among various authors as to whether to directly associate the authorship of work with a natural person. Specifically, the removal of the phrase “natural” person from the FSEK

¹¹⁵ Güneş, İ., (2022). Uygulamada Fikir ve Sanat Eserleri Hukuku, p. 117.

¹¹⁶ Ibid, p. 120.

¹¹⁷ Ateş, M. (2007). Fikri Hukukta Eser, p. 102.

has further exacerbated these debates. In this regard, I believe it would be beneficial to make a clear distinction between the concept of an actual person and that of a legal entity.

3.2.1.1 Natural Person

One of the debates in the eligibility for work pertains to the question of whether the condition of bearing the characteristic of the author can only be fulfilled by a natural person. The significance of this discussion for this thesis lies in determining how AI-generated products should be treated. If only natural persons can be the authors of a work, then the issue of the status of products and authorship of products created solely by AI will become even more complex.

In the FSEK, the definition of the author has been presented in two separate articles. Along with Art. 8 of the FSEK, the Law also gives the definition of the author in Art. 1/B Definitions section. According to Art. 1/B-b, the author is defined as “*The person creating the work*” Until 2004, the term "natural" was used in the Art. 1/B-b in the FSEK and the author was defined as the natural person creating the work. Therefore, prior to the year 2004, the FSEK explicitly regulated that the existence of a natural person was a requirement for authorship. However, with the amendment of the law, the phrase "natural" was removed.¹¹⁸ The question of whether this situation makes a difference in practice has been widely debated in doctrine.

The reason behind the ambiguity is the previous amendment made in the FSEK. In the previous versions of the FSEK, there were exceptions for people to be authors other than the creator of an original work, even though the author was regulated as the natural person creating the work. These exceptions were grouped around various points, such as the employer being the author of works created by employees, servants, and civil servants during the performance of their work, the publisher being the author of works created within the scope of the plan determined by the publisher, and the producer being the author of cinematographic works.¹¹⁹ This previous system allowed for legal entities to be

¹¹⁸ Article 28 of the Law no. 5101 dated 3/3/2004.

¹¹⁹ Okutan Nilsson, G. (2008). Türk Fikir ve Sanat Eserleri Hukukunda Tüzel Kişinin Eser Sahipliği Sorunu. Uğur Alacakaptan’a Armağan Cilt:2. İstanbul Bilgi Üniversitesi Yayınları. P. 485.

authors as well, but Art. 8 of the FSEK has been amended, and exceptions allowing for legal entities to be authors were removed with Law no. 4110 dated 1995.¹²⁰

Within the doctrine, the requirement that a natural person must create a work in order to discuss its existence is still being sought¹²¹, and it is argued that removing the phrase natural person was not appropriate¹²². Güneş posits that the natural person who created a work must be considered the author, and since this principle is a mandatory rule, deviation from this principle is not allowed through contractual agreements.¹²³ Similarly, scholars such as Kılıçoğlu, Tekinalp, Erel, and Ateş emphasized the necessity of a natural person for the authorship of a work in their books written after the mentioned amendment dated 2004.

Kılıçoğlu argues that for there to be a work, there must be a human activity present and that the author can only be a natural person.¹²⁴ Similarly, Tekinalp explicitly states that a work should be a product of an intellectual effort and activity; therefore, it needs to be created by a human being.¹²⁵ According to Erel, authorship can be possessed by natural persons only due to the principle of creation (*Grundsatz der Schöpfungswahrheit*).¹²⁶ Accordingly, for a work to benefit from copyright protection or to obtain rights that arise from the copyright, no legal action is necessary. The moment the creative work is done, the authorship and the rights obtained from the copyright are established. Ateş suggests that if a product cannot be attributed to an intellectual activity of a natural person, the obtained creation cannot be classified as work.¹²⁷

Parallel to doctrine, the Turkish Court of Cassation has ruled in a decision issued after the legislative amendment that removed the term natural (person) and that legal entities

¹²⁰ Ibid, p. 486.

¹²¹ Güneş, İ. (2022). Uygulamada Fikir ve Sanat Eserleri Hukuku, p. 111.

¹²² Kılıçoğlu, A. M. (2021). Sınai Haklarla Karşılaştırmalı Fikri Haklar, p. 112.

¹²³ Güneş, İ. (2022). Uygulamada Fikir ve Sanat Eserleri Hukuku, p. 116.

¹²⁴ Kılıçoğlu, A. M. (2021). Sınai Haklarla Karşılaştırmalı Fikri Haklar, p. 111.

¹²⁵ Tekinalp, Ü. (2005) Fikri Mülkiyet Hukuku, p. 106.

¹²⁶ Erel, Ş. N. (2009). Türk Fikir ve Sanat Hukuku, p. 87.

¹²⁷ Ateş, M. (2007). Fikri Hukukta Eser, p. 80.

cannot be authors.¹²⁸ It is observed that the lawmaker's intention was not to change the rule with the amendment dated 2004. Removal of the term natural from the definition cannot be considered as an exception that allows for legal entities to be authors.¹²⁹ As it can be seen, even though there are various definitions regarding the characteristic of the author in the doctrine, all of the mentioned scholars and the Turkish Court of Cassation emphasized that the existence of a natural person is a prerequisite to fulfilling the condition.

3.2.1.2 Legal Entity

According to Article 47 of the Turkish Civil Code, legal entity is defined as “*Group of persons organized to create a single body and independent property groups constructed for special object, are defined as legal entity as per the provisions contrasting its qualities, relations etc.*”.

The question of whether legal entities can be granted authorship under Turkish copyright law is a significant issue. Specifically, the removal of the phrase natural person by the 2004 amendment and the remaining phrase “*if the first author is a legal person*” in article 27/4 of the FSEK can create confusion. In fact, the phrase in article 27/4 of FSEK, is contradictory to the rest of the law and creates the perception that legal entities can be authors of a work.¹³⁰

In the doctrine, this phrase has been criticized and suggested that it should be understood that this provision have been used only in relation to film producers of films created before the 1995 amendment.¹³¹ Tekinalp considered that the fact that Art. 27/4 has not been updated with the amendments as a neglect and stated that the definition provided in the Art 1/B-b should be prioritized in order the eliminate the difficulty of interpretation.¹³²

¹²⁸ Yılmaztekin, H. K. (2020). Fikir ve Sanat Eserleri Kanunu Uyarınca Eser Sahipliği ve Hak Sahipliği ile Bunların Tecavüz Davaları Bağlamında Davacı Sıfatına Etkileri. Adalet Dergisi, Volume 65, p. 509. Retrieved July 15, 2022, from <https://dergipark.org.tr/en/download/article-file/1468212>

The relevant case no. Turkish Court of Cassation 11. HD. T. 25.02.2008, E. 2007/227, K. 2008/2175.

¹²⁹ Okutan Nilsson, G. (2008). Türk Fikir ve Sanat Eserleri Hukukunda Tüzel Kişinin Eser Sahipliği Sorunu, p. 496.

¹³⁰ Kılıçoğlu, A. M. (2021). Sınai Haklarla Karşılaştırmalı Fikri Haklar, p. 195.

¹³¹ Güneş, Uygulamada Fikir ve Sanat Eserleri Hukuku, p. 115.

¹³² Tekinalp, Ü. (2005). Fikri Mülkiyet Hukuku, p. 134.

Indeed, in Turkish law, both the Court of Cassation and doctrine agree that legal entities cannot be authors of a work, as it is explained in the previous section. The Court of Cassation 11th Civil Chamber rejected claims for non-pecuniary damages on the grounds that moral rights can only be exercised by the author who created the work in a case filed by a legal entity.¹³³ The Court of Cassation repeated the same approach in another case dated 2015 and stated that the legal entities cannot be an author of a work since they cannot have moral rights.¹³⁴

Legal entities, on the other hand, can possess the right to use certain rights arising from copyright. IPRs can be the subject of legal transactions, in principle. Copyright can be transferred to others through legal transactions such as license or legal obligations such as assignment, inheritance, and forced sales.¹³⁵ It is important to note that while rights can be transferred to others, this does not mean that the author of the work has changed, as the author is the person who created the work.¹³⁶ Only the usage of rights of the work are transferred to others.

3.2.2 Rights of the Author

A work is considered as work in terms of IP law once it is created without the need for any registration procedure. However, for the author to benefit from copyright protection, the work must be disclosed to the public and published.¹³⁷ Disclosure of a work to the public can be executed in different forms, such as reading a poem publicly or representing a show to people. Publishing a work may occur in the form of the sale or distribution of

¹³³ Turkish Court of Cassation, 11. HD 2007/10504 E. 2009/5482 K.

"... 'Since the natural persons who created the web site in question are the employees of the plaintiff company, in accordance with Article 1/B-(b) and Article 8 of the Law No. 5846 on Intellectual and Artistic Works, the author of the work is the natural person who created it, and it is not possible to consider the plaintiff company as the author. According to the same law, the economic and moral rights on a work belong to the author. The plaintiff company, on the other hand, has the right to use the economic rights on the work, as an employer, in accordance with Article 18 of the Law No. 5846, but the moral rights can only be used by the natural persons who created the work. Therefore, in this specific dispute, it cannot be remarked that the moral rights of the plaintiff company were violated, and the acceptance of the moral compensation claim is not appropriate, while its rejection is required.'" (www.lexpera.com.tr)

¹³⁴ Zorluel, M. (2019). Yapay Zeka ve Telif Hakları. Türkiye Barolar Birliği Dergisi, 2019(42), p. 308. Retrieved from <http://tbbdergisi.barobirlik.org.tr/Dergi/Dergi142/304/>

¹³⁵ Kılıçoğlu, A. M. (2021). Sınai Haklarla Karşılaştırmalı Fikri Haklar, p. 182.

¹³⁶ Kılıçoğlu, A. M. (2021). Sınai Haklarla Karşılaştırmalı Fikri Haklar, p. 182; Güneş, Uygulamada Fikir ve Sanat Eserleri Hukuku, p. 117.

¹³⁷ Erel, Ş. N. (2009). Türk Fikir ve Sanat Hukuku, p. 103

copies of a work. The existence of the author's consent for publishing¹³⁸ and the intention of disclosure¹³⁹ are required to confirm that publishing and disclosure conditions have been satisfied.

The FSEK elaborates on the rights of the author under two subheadings after giving general information in the introduction article, and these rights include the whole and parts of the work.¹⁴⁰ The rights arising from work are economic rights and moral rights. Within the scope of the FSEK, protection is primarily based on economic and moral rights rather than the work or the author itself.¹⁴¹ Economic and moral rights are subject to the principle of limited number; that is, they are limited to those specified in the FSEK. These are intangible rights on the work but independent of the work's material existence.¹⁴² These two types of rights are protected independently from each other.¹⁴³ Moral and economic rights are absolute rights, in other words, these rights can be claimed against anyone.

It is important to note that authorship, which consists of both economic and moral rights, cannot be transferred.¹⁴⁴ This is because the logic of authorship involves the author reflecting and transferring a part of their identity to work. As discussed in the subjective condition above, a creative product acquires the quality of a work by carrying the specificity of its author. Given this, it is not possible for the authorship of a work to be transferred to another person since moral rights cannot be transferrable.

The rights granted within the scope of the FSEK provide protection to related rights holders, too. Related right holders include performing artists, phonogram producers, broadcasting companies, and film producers, according to the FSEK Art. 80.

¹³⁸ Ibid, p. 107.

¹³⁹ Ibid, p. 105.

¹⁴⁰ Tekinalp, Ü. (2005) Fikri Mülkiyet Hukuku, p. 150.

¹⁴¹ Ibid, p. 146.

¹⁴² Turan, M. (2016). Çağlar Boyu Düşünce Özgürlüğü: Türkiye'de ve Dünyada Telif Haklarının Tarihsel Gelişiminin Değerlendirilmesi, 30(2). Türk Kütüphaneciliği. P. 21.

¹⁴³ Kılıçoğlu, A. M. (2021). Sınai Haklarla Karşılaştırmalı Fikri Haklar, p. 150.

¹⁴⁴ Güneş, İ. (2022). Uygulamada Fikir ve Sanat Eserleri Hukuku, p. 143.

3.2.2.1 Economic Rights

The economic rights of the author are one of the rights derived from the work. Economic rights are rights granted to the author of a work that provides the opportunity for economic evaluation and the ability to generate income.¹⁴⁵

The economic rights of the author are listed one by one in the FSEK, and these rights are the right of adaptation, right of reproduction, right of distribution, right of performance, right to communicate a work to the public by devices enabling the transmission of signs, sounds and/or images. These rights can be executed independently of one another.¹⁴⁶

Economic rights can be the subject of legal transactions such as inheritance¹⁴⁷, transfer of rights¹⁴⁸, forced sales through legal action, etc. The author of a work is authorized to transfer the economic rights to different persons (natural or legal), as well as to transfer the entire right or a portion of it temporarily.¹⁴⁹

According to the FSEK Art. 27, economic rights are protected for lifetime of the author and 70 years after the author's death. Once the term of protection expired, the work becomes public domain.

3.2.2.2 Moral Rights

The author's moral rights include four types of rights: authority to disclose the work to the public, authority to designate the name, prohibition of modification, and rights of the author against persons who own or possess a work. The title of rights of the author against persons who own or possess a work is detailed under three sub-titles: the right to reach the original of the work, the right to exhibit, and the right to prevent the destruction of the work.

Moral rights depend on the author's personality and give the author absolute and exclusive powers that can be claimed against anyone.¹⁵⁰ The right the disclosure a work

¹⁴⁵ Kılıçoğlu, A. M. (2021). Sınai Haklarla Karşılaştırmalı Fikri Haklar, p. 243.

¹⁴⁶ Güneş, İ. (2022). Uygulamada Fikir ve Sanat Eserleri Hukuku, p. 144.

¹⁴⁷ FSEK Art. 63

¹⁴⁸ FSEK Art. 48

¹⁴⁹ Güneş, İ. (2022). Uygulamada Fikir ve Sanat Eserleri Hukuku, p. 144.

¹⁵⁰ Tekinalp, Ü. (2005) Fikri Mülkiyet Hukuku, p. 151.

to the public can be exercised by the author or left to the person to whom the author has transferred a financial right.¹⁵¹

FSEK contains the specific term of protection for economic rights. Specifically, Art. 27 of the FSEK regulates the term of protection over economic rights throughout life and 70 years after the death of the author. This provision does not apply to moral rights by analogy.¹⁵² In FSEK, there is no termination regulated by the author's death. The absence of protection periods in moral rights and the fact that moral rights cannot be heritable can cause confusion. However, the moral rights of a deceased author can still be exercised after death.¹⁵³

In case of an infringement on the moral rights of a deceased author, moral rights can be used by the author's relatives or by the Ministry of Culture and Tourism according to Art. 19 of the FSEK, even though moral rights are not included in heritage.¹⁵⁴ The legal situation here is not the inheritance but the authorization.¹⁵⁵ Kılıçoğlu approaches this issue differently and disagrees with the idea that moral rights cannot be inherited. According to Kılıçoğlu, moral rights do not have an economic value and, therefore, will not be included in the calculation of the inheritance, but the authority to use moral rights can be inherited.¹⁵⁶ The comprehensive protection provided for moral rights is interpreted as providing motivation to the author for producing works.¹⁵⁷

3.3 Computer Programs in Turkish Copyright Law

Being a party to the TRIPS Agreement, the WIPO Internet Treaties, and the Berne Convention, Türkiye has included computer programs to the FSEK with the 1995 amendment to harmonize its national legislation with these international agreements and to ensure the protection of developing computer technologies in terms of copyright. The regulation regarding computer programs was also greatly influenced by Decision 1/95

¹⁵¹ Erel, Ş. N. (2009). Türk Fikir ve Sanat Hukuku, p. 137.

¹⁵² Tekinalp, Ü. (2005) Fikri Mülkiyet Hukuku, p. 153.

¹⁵³ Ibid, p. 165.

¹⁵⁴ Ibid, p. 152.

¹⁵⁵ Ibid.

¹⁵⁶ Kılıçoğlu, A. M. (2021). Sınai Haklarla Karşılaştırmalı Fikri Haklar, p. 245.

¹⁵⁷ Gök, B. (2022). Yapay Zeka Sistemleri Tarafından Üretilen Fikri Ürünlerin Telif Hakkı, p. 74.

signed between Türkiye and the EU on March 6, 1995.¹⁵⁸ In accordance with this Decision, Türkiye has committed to bringing its domestic law in line with EU intellectual property law legislation.¹⁵⁹

In FSEK, definitions of the computer program, interface, and interoperability concepts were made in the Definitions section. According to FSEK Article 1/B-g, computer programs refer “*A set of computer instructions arranged in a way that will make a computer system carry out a special process or task and the preparatory work that will lead to the creation and development of such set of instructions.*”

Computer programs consist of 3 software types: system programs (Windows, macOS, Android, iOS, etc.), utility programs (WinZip, Antivirus, Wizard, etc.), and application programs (Google Chrome, MS Word, AutoCAD, etc.).¹⁶⁰ The type of program does not make any difference in terms of protection.¹⁶¹ Computer programs are classified as literary and scientific works and are protected by copyright. However, similar to other works, the principles and ideas that form the basis of any element of computer programs are not considered a work.

According to Art. 2 of the FSEK, works expressed in writing and language, computer programs expressed in all forms, and preparatory designs made on the condition of creating a computer program at the next stage are also protected as literary and scientific works. The phrase “*... preparatory designs, provided that the same leads to a computer program at the next stage*” has been interpreted by some authors in the doctrine as requiring that the computer program actually be created in the next stage. For instance, Tekinalp adopts the idea that preparatory designs are not protected unless they create computer programs in the next stage.¹⁶² However, in light of the EU Software Directive¹⁶³, which forms the basis of the provision, and the decisions of the European Court of Justice, preparatory designs that have the potential to be transformed into a

¹⁵⁸ Ateş, M. (2007). Fikri Hukukta Eser, p. 148.

¹⁵⁹ Ibid, p. 148.

¹⁶⁰ Ibid, p. 149.

¹⁶¹ Yılmaztekin, H. K. (2021). Yapay Zekanın Eser Sahipliği, p. 172.

¹⁶² Tekinalp, Ü. (2005) Fikri Mülkiyet Hukuku. P. 110.

¹⁶³ Directive 2009/24/EC of the European Parliament and of the Council of 23 April 2009 on the Legal Protection of Computer Programs, (7) and Art. 1.

computer program are considered sufficient.¹⁶⁴ According to Ateş, the only product that has the potential to create a computer program in the next stage is source codes, and source codes shall be protected even if it does not create a computer program in the next stage.¹⁶⁵

Computer programs are expressed with codes and software languages such as Java, Python, C, SQL, Ruby, and many more.¹⁶⁶ Even though FSEK regulates that computer programs expressed in any form are protected under the literary and scientific works, when considering the fact that computer programs are expressed through codes and software languages, it can be evaluated that the codes fulfil the writing condition and the software languages also fulfil the language condition already. In this respect, computer programs ultimately possess the characteristic of a written text, and it is a convenient decision to protect computer programs within the scope of the FSEK.¹⁶⁷

Databases created by adapting, editing, or making any changes to a computer program and compiling data within a specific plan and in line with the purpose will also be protected as adaptation and collection according to Art. 6 of the FSEK. The protection issued in this article is on the database rather than the data.

The right to reproduce, which is among the economic rights of the author, is regulated to include the loading, displaying, transmitting, and storing of a computer program to the extent that it requires temporary reproduction in terms of computer programs in the FSEK Art. 22. Thus, for the person who created a computer program, viewing, downloading, or sending the computer program to someone else via email is among the author's economic rights; any violation of these will result in infringement.

Due to the exceptions such as the protection of the general interest, public service, fair use, and the authorities granted to the government, it is allowed to use the works in some cases specified in the law. Regarding computer programs, observing, examining, and testing the program's operation is freed within the scope of the personal use exception. In the relevant article, if the acts in the sense of reproducing and processing an independent

¹⁶⁴ Yılmaztekin, H. K. (2021). *Yapay Zekanın Eser Sahipliği*, p. 173

¹⁶⁵ Ateş, M. (2007). *Fikri Hukukta Eser*, p. 149.

¹⁶⁶ Kaya, E. (2021). *The Intellectual Property Trilogy: Untraditional Topics in Copyright, Patent and Trademark*. Yetkin. Ankara. P.51.

¹⁶⁷ Ateş, M. (2007). *Fikri Hukukta Eser*, p. 144.

computer program to run the interoperability of other programs are done by authorized persons, in necessary cases for the specified purposes, these acts are also permitted. However, it is regulated that this freedom can be used to realize the interoperability of another program without giving it to other people other than for these purposes, and it is clearly stated that it cannot be used for the purpose of developing, producing, or marketing other programs or for any purpose that violated intellectual property rights under the Art. 38.

This section is prepared to provide general information on computer programs in Turkish law, and the scope of products created with the aid of computer programs and solely generated by computer programs have been explained in Chapter 6.



4 THE EUROPEAN UNION COPYRIGHT LAW

This section examines the copyright provisions in the EU. After providing general information in the General Overview section, explanations are presented regarding the binding international agreements in EU law and issues closely related to this thesis's subject matter. The analysis also considers the decisions of the European Union Court of Justice, and evaluations are made regarding the conditions to be deemed work and issues related to authorship. Finally, an examination is conducted on computer programs. As the previous section evaluates the effect of international agreements in detail, common parts are presented in summary form in order to avoid repetition.

4.1 General Overview

Even though the EU has developed a unique legal system, it gives vital importance to cooperation with the rest of the world and participates in international agreements. The Berne Convention, the first international agreement in the field of copyright, the TRIPS Agreement, the international intellectual property agreement that is an annex to the WTO, and the WCT and WPPT that are known as WIPO Internet Treaties are the significant international agreements to which Türkiye and all the EU Members are parties of.

Universal Copyright Convention, on the other hand, is one of the significant international conventions regarding copyright, which is not adopted by Türkiye but is in force in the EU. The UCC was seen as an alternative for the countries, such as the USA, which disagreed with the provisions of the Berne Convention.¹⁶⁸ One of the most critical aspects distinguishing the UCC from the Berne Convention is that while the Berne Convention prohibits imposing formalities to benefit from copyright protection, the UCC does not. That means the automatic protection principle in the Berne Convention does not exist in the UCC. The Berne Convention provides more comprehensive protection than the UCC regarding the term of the protection. The UCC provides 25 years of protection after the author's death which is 50 years in the Berne Convention.

The EU Member States are bound by both conventions as they are parties to the UCC and Berne Convention. It will not be wrong to say that the EU has developed legal rules in line with the Berne Convention since the provisions and scope of the protection of the

¹⁶⁸ The UK Copyright Service. (2007, January 27). The Universal Copyright Convention (UCC). Retrieved December 22, 2022, from https://copyrightservice.co.uk/copyright/p14_universal_copyright_convention

Berne Convention are more extensive. This phenomenon can be inferred from the references to the Berne Convention made by the directives and international agreements such as TRIPS and WCT agreements, which possess binding characteristics in the context of the EU.

Since all kinds of formalities are prohibited with the automatic protection principle regulated in the Berne Convention, there is no registration requirement to benefit from copyright protection in the EU. The copyright occurs when the work is created. Factors such as merit, quality, aesthetic character, and purpose are not considered while determining the copyright protection of a subject matter.¹⁶⁹

Regarding copyright, the approach and provisions of the EU show parallelism with Turkish Law to a great extent since the fundamental international agreements are primarily mutual. However, the approach regarding authorship of a work by only a natural person, which is accepted without exception in Turkish Law, contains some exceptions in EU-level legislation and domestic laws of the EU Member States.

The general framework of IPRs at the EU level is regulated by regulations and directives. Nevertheless, the least harmonized IPR in the EU is the copyright.¹⁷⁰ IPRs are designed to be regulated by the national laws of the Member States.¹⁷¹ The Member States of the EU possess the autonomy and liberty to regulate matters pertaining to the qualification of works, the categories, and rights, within the framework of international agreements to which the EU and Member States are parties.¹⁷²

4.2 Concept of Work

In the EU directives, no definition is presented regarding the definition of intellectual and artistic work, but some directives refer to the Berne Convention's definition.¹⁷³ The definition of intellectual and artistic work is given in the Berne Convention Art. 2, and

¹⁶⁹ Lattacher, M. (2021). Authorship Matters! Authorship in the EU with a focus on film. *Stockholm Intellectual Property Law Review*, 4(2), p. 59.

¹⁷⁰ Derclaye, E., & Leistner, M. (2011). Intellectual property overlaps: A European perspective. *Hart*. P.31.

¹⁷¹ Yılmaztekin, H. K. (2021). *Yapay Zekanın Eser Sahipliği*, p. 74.

¹⁷² *Ibid*, p. 75.

¹⁷³ E.g., Term Directive Art. 1(1): *"The rights of an author of a literary or artistic work within the meaning of Article 2 of the Berne Convention shall run for the life of the author and for 70 years after his death, irrespective of the date when the work is lawfully made available to the public."*

according to this definition, “*The expression ‘literary and artistic works’ shall include every production in the literary, scientific and artistic domain, whatever may be the mode or form of its expression...*”. Although there is no requirement regarding originality or creativity in the definition, experts on the Berne Convention agree that creativity is a necessary element for a work to be protected.¹⁷⁴

In the EU law, there are 3 directives that regulate the originality criterion for an intellectual creation to be considered work: the Software Directive, the Database Directive, and the Term Directive.¹⁷⁵ According to these directives, the condition of “author’s own intellectual creation” must be present to benefit from copyright protection. The originality is similar to the “characteristic of the author” condition for an intellectual creation to be considered a work in Turkish Law. However, since the level and scope of creativity are not presented in the EU legislation, it is interpreted by various scholars and case law at the EU level.

The Berne Convention, after establishing a general framework, states that certain matters will be regulated by the domestic laws of the signatory states. In parallel, the conditions for work qualification, types of work, and regulations regarding rights have been left to the domestic laws of EU Member States.¹⁷⁶ In this regard, each Member State has or has not regulated the definition of work in its own domestic law.

Art. L112-1 of the French Intellectual Property Code defines the work as “*The provisions of this Code shall protect the rights of authors in all works of the mind, whatever their kind, form of expression, merit or purpose.*”¹⁷⁷ In France, the originality condition is deemed as a prerequisite for a product to be considered work and associated with the expression of the personality of the author.¹⁷⁸

Similar to French law, Art. 2 of Section 2 of the German Act on Copyright and Related Rights (*Urheberrechtsgesetz*) regulates the term work as follows: “*Only the author’s own*

¹⁷⁴ Derclaye, E., & Leistner, M. (2011). Intellectual property overlaps: A European perspective, p. 9.

¹⁷⁵ Yılmaztekin, H. K. (2021). Yapay Zekanın Eser Sahipliği, p. 87.

¹⁷⁶ Ibid, p. 76.

¹⁷⁷ French Intellectual Property Code. Retrieved April 3, 2023, from <https://www.wipo.int/edocs/lexdocs/laws/en/fr/fr467en.pdf>

¹⁷⁸ Lovells, H. (2019). Copyright in France. Retrieved April 3, 2023, from <https://www.lexology.com/library/detail.aspx?g=db4300b2-84aa-4a2a-acc3-e786453798ec>

intellectual creations constitute works within the meaning of this Act."¹⁷⁹ According to German copyright law, a work must meet the standard of being a personal intellectual creation, demonstrating an individual character and exhibiting a certain degree of creativity in its form and content in order to qualify for copyright protection.¹⁸⁰

From the EU perspective, the concept of originality is more closely associated with origination rather than uniqueness.¹⁸¹ The concept of origination refers to the ability to attribute the work produced to the author, meaning not copied. However, both continental law and common law copyright traditions also require the presence of additional criteria such as creativity, skill, effort, and judgement in addition to the requirement of origination.¹⁸²

In countries with a common law tradition, such as the United Kingdom (former EU Member State) and Ireland, the elements of skill and effort are given greater prominence. Works that are original creations of the author and demonstrate sufficient skill, labour, effort, and judgment are granted copyright protection even if all criteria are not present at the same time.¹⁸³ The idea behind this approach in the common law is to prevent shortcuts and to ensure that authors are rewarded for their efforts and investments.¹⁸⁴

While most EU Member States' domestic laws emphasize the originality criterion when defining the concept of a work, the harmonization movement regarding the condition of originality, which began with the Infopaq decision in 2009, is perceived to have been established as a result of the decisions issued by the European Court of Justice ("ECJ") in terms of EU law.¹⁸⁵ The requirement of "author's own intellectual creation" has been

¹⁷⁹ German Act on Copyright and Related Rights. Retrieved April 3, 2023, from <https://www.wipo.int/wipolex/en/text/474263>

¹⁸⁰ Schmitz, J. (2022). Copyright - the basics. Publisso. Retrieved April 3, 2023, from <https://www.publisso.de/en/advice/publishing-advice-faqs/copyright-and-academic-research/>

¹⁸¹ Ibid.

¹⁸² Lukoševičienė, A. (2017). On Author, Copyright and Originality: Does the Unified EU Originality Standard Correspond to the Digital Reality in Wikipedia? Masaryk University Journal of Law and Technology: Vol. 11(2).. P.217. Retrieved July 10, 2022, from <https://doi.org/10.5817/MUJLT2017-2-2>

¹⁸³ Rahmatian, A. (2013). Originality in UK Copyright Law: The Old "Skill and Labour" Doctrine Under Pressure. IIC 44, p. 4–34. Retrieved January 10, 2023, from <https://doi.org/10.1007/s40319-012-0003-4>

¹⁸⁴ Ibid.

¹⁸⁵ Lukoševičienė, A. (2017). On Author, Copyright and Originality: Does the Unified EU Originality Standard Correspond to the Digital Reality in Wikipedia?

articulated as a defining feature of originality in the Infopaq Case by the ECJ.¹⁸⁶ The court emphasized the phrases intellectual creation and author's own intellectual creation by referring to the Berne Convention Articles 2(5) and 8, Article 1(3) of Directive 91/250, Article 3(1) of Directive 96/9, Article 6 of Directive 2006/116, and the preamble of Directive 2001/29¹⁸⁷, which contain the terms intellectual creation and author's own intellectual creation conditions. With the Infopaq case, the EJC has accepted that this condition shall be applied for all types of works within the scope of the Berne Convention.¹⁸⁸

In Levola Case¹⁸⁹, the ECJ also held that first, “*the subject matter concerned must be original in the sense that it is the author's own intellectual creation*”, and second, it must be “*the expression of the author's own intellectual creation*” conditions should be satisfied cumulatively for the copyright protection.¹⁹⁰

In Painer Case¹⁹¹, the ECJ evaluated originality as the ability to make free creative choices and stated that even a portrait photograph can be eligible for copyright protection if it reflects the author's personality and expresses the author's free and creative choices in the production of that photograph.¹⁹² The ECJ adopted the same approach in the Cofemel¹⁹³ and Funke Medien¹⁹⁴ cases by repeating the term free and creative choice.

¹⁸⁶ Infopaq International A/S v Danske Dagblades Forening, Case C-5/08. (2009).

¹⁸⁷ Infopaq, para. 34-37.

¹⁸⁸ Yılmaztekin, H. K. (2021). Yapay Zekanın Eser Sahipliği, p. 91.

¹⁸⁹ Levola Hengelo BV v Smilde Foods BV, Case C-310/17. (2018).

¹⁹⁰ Mccutcheon, J. (2019). The Concept of the Copyright Work under EU Law: More Than a Matter of Taste. European Law Review. Retrieved July 15, 2022, from https://www.researchgate.net/publication/334760895_The_Concept_of_the_Copyright_Work_under_EU_Law_More_Than_a_Matter_of_Taste

¹⁹¹ Eva-Maria Painer v Standard VerlagsGmbH, Axel Springer AG, Süddeutsche Zeitung GmbH, Spiegel-Verlag Rudolf Augstein GmbH & Co KG, Verlag M. DuMont Schauberg Expedition der Kölnischen Zeitung GmbH & Co KG, Case C-145/10. (2011).

¹⁹² Painer Case, para. 94.

¹⁹³ Cofemel – Sociedade de Vestuário SA v G-Star Raw CV, Case C-683/17. (2019), para. 30.

¹⁹⁴ Funke Medien NRW GmbH v Bundesrepublik Deutschland, Case C-469/17. (2019), para. 19, 23, and 25.

Moreover, notions such as creativity, personal touch, and autonomy are significant metrics that are applied by the ECJ for the originality test in the sense of copyright law.¹⁹⁵

Even though ECJ stressed that originality/creativity is a condition that needs to be fulfilled, ECJ cases do not give much guidance on the assessment of creativity.¹⁹⁶ Hence, Member States have evaluated the originality/creativity at their national courts.¹⁹⁷

Regarding form, there appear to be differences between common law and continental law countries. Embodiment and permanent form are considered foundational elements in countries such as the UK and the US.¹⁹⁸ In contrast, in countries of Continental Europe, fixation is not generally established as a foundational element. However, it should be noted that the notion of fixation is a necessary element for certain intellectual and artistic works to be considered works from a legal standpoint in these countries as well.¹⁹⁹

4.3 Authorship

In the EU, there are two different legal systems to which the EU Member States adhere: common law and continental (civil) law. These law systems have different approaches regarding copyright and authorship. In continental European countries, the copyright term has the meaning of the author's right. The French term "*droit d'auteur*", the German term "*urheberrecht*", and the Italian term "*diritto d'autore*", which are used to define copyright in their respective legal systems, differ from the English term copyright in that they convey the meaning of author's rights rather than the right to copy.²⁰⁰

In common law systems, the concept of copyright is more closely associated with economic rights, stemming from the term right to copy. It is widely acknowledged that

¹⁹⁵ van Gompel, S. (2014). Creativity, autonomy and personal touch. A critical appraisal of the CJEU's originality test for copyright. In M. van Eechoud (Ed.), *The Work of Authorship* (pp. 95-144). Amsterdam: Amsterdam University Press. <https://doi.org/10.1515/9789048523009-004>

¹⁹⁶ Hugenholtz, P.B., Quintais, J.P., (2021). Copyright and Artificial Creation: Does EU Copyright Law Protect AI-Assisted Output? *IIC* 52, 1190–1216. Retrieved December 22, 2022, from <https://doi.org/10.1007/s40319-021-01115-0> p. 1198.

¹⁹⁷ *Ibid*, p. 1198.

¹⁹⁸ Ateş, M. (2007). *Fikri Hukukta Eser*, p. 43.

¹⁹⁹ *Ibid*, p. 45.

²⁰⁰ Güneş, İ. (2022). *Uygulamada Fikir ve Sanat Eserleri Hukuku*, p. 113.

compared to civil law jurisdictions, common law jurisdictions tend to be more reticent in recognizing and granting moral rights protection.²⁰¹

In some of the Member States of the EU, the presence of a natural person for authorship is regulated explicitly in their domestic laws, such as Spain, while some other Member States have not included this expression in their domestic laws but still seek the condition, such as Germany and France. With regard to authorship, the Member States may determine the scope and limits of rights and authorship without conflicting with international agreements and EU-level binding legislation.

4.3.1 The Necessity of a Natural Person

Despite its significance in the discussions of IP, authorship is a concept that remains unclear in EU law, similar to the Berne Convention. There is no harmonized definition of authorship at the EU level legal rules.²⁰² Some scholars argue that, according to the Berne Convention, the existence of a natural person is not required for the work to appear, and legal persons can also be the author of the work.²⁰³ However, when the Berne Convention is examined, the authorship necessitates both conception and execution for a work.²⁰⁴ The convention has also pointed out its human-centered approach by using the term original works in the Art. 2(1).²⁰⁵ Therefore, the text and historical background of the Berne Convention strongly implies that the author and authorship intended to refer to the natural person who created the work.²⁰⁶ However, there is no prohibitive provision for legal persons prohibiting being designated as an author in the Berne Convention.

²⁰¹ Miernicki, M., Ng (Huang Ying), (2021). Artificial intelligence and moral rights. *AI & Soc* 36, p. 319–329. Retrieved January 15, 2023, from <https://doi.org/10.1007/s00146-020-01027-6>

²⁰² Drexler, J., Hilte, R. M., et al. (2021). Artificial Intelligence and Intellectual Property Law Position Statement of the Max Planck Institute for Innovation and Competition of 9 April 2021 on the Current Debate. Max Planck Institute for Innovation and Competition Research Paper No. 21-10. p. 18.

²⁰³ Yılmaztekin, H. K. (2021). *Yapay Zekanın Eser Sahipliği*, p. 72, 73.

²⁰⁴ Drexler, J., Hilte, R. M., et al. (2021). Artificial Intelligence and Intellectual Property Law Position Statement of the Max Planck Institute for Innovation and Competition of 9 April 2021 on the Current Debate, p. 19.

²⁰⁵ Spindler, G. (2022). AI and Copyright Law: The European Perspective. In L. DiMatteo, C. Poncibò, & M. Cannarsa (Eds.), *The Cambridge Handbook of Artificial Intelligence: Global Perspectives on Law and Ethics* (Cambridge Law Handbooks, pp. 257-270). Cambridge: Cambridge University Press. doi:10.1017/9781009072168.025 p. 259.

²⁰⁶ Hugenholtz, P.B., Quintais, J.P., (2021). Copyright and Artificial Creation: Does EU Copyright Law Protect AI-Assisted Output? p. 1995.

A clear definition or criterion for authorship cannot be found in ECJ decisions either. However, when ECJ cases are evaluated, especially when examining the work, the criteria applied when determining the work also indicate the conditions of authorship.²⁰⁷ As explained under Chapter 4.2. Concept of Work title, in the Infopaq case, ECJ stated that the existence of the author's own intellectual creation condition is sought by referring to certain EU directives and the Berne Convention. In Painer Case, the author's free and creative choice is regulated as a condition for being considered a work. This approach was followed with the Cofemel and Funke Medien Cases. In addition, merits linked to a natural person, such as personal touch, creativity, autonomy, etc. considered by the ECJ while defining the term work.

A limited number of legal regulations at the EU level pertaining to the issue of authorship.²⁰⁸ Among them, the Software Directive 2009/24 EC holds an important place. According to Software Directive Art. 2, "*The author of a computer program shall be the natural person or group of natural persons who has created the program or, where the legislation of the Member State permits, the legal person designated as the rightholder by that legislation.*" This provision indicates that the EU prioritize the natural person's authorship but allows the Member States to designate the legal entities as the author.²⁰⁹ Similar exceptions are also granted for cinematographic works, photographs, and databases.²¹⁰

Member States regulate the authorship in their domestic laws, and these regulations vary from one country to another. The Spanish Consolidated Text of the Law on Intellectual Property Regularizing, Clarifying, and Harmonizing the Applicable Statutory Provisions Art. 5 explicitly contains the natural person when defining the author: "*The natural person who creates any literary, artistic or scientific work shall be considered the author thereof.*".²¹¹

²⁰⁷ Lattacher, M. (2021). Authorship Matters! Authorship in the EU with a focus on film, p. 59.

²⁰⁸ Hugenholtz, P.B., Quintais, J.P. (2021). Copyright and Artificial Creation: Does EU Copyright Law Protect AI-Assisted Output? p. 193.

²⁰⁹ Okutan Nilsson, G. (2008). Türk Fikir ve Sanat Eserleri Hukukunda Tüzel Kişinin Eser Sahipliği Sorunu, p. 471.

²¹⁰ Ibid, p. 471.

²¹¹ Spanish Consolidated Text of the Law on Intellectual Property regularizing, clarifying, and harmonizing the applicable statutory provisions. Retrieved April 5, 2023, from <https://www.wipo.int/wipolex/en/text/126704>

On the other hand, Member States such as France and Germany do not use the natural person term while defining the author in their domestic laws, even though the natural person condition is sought for the authorship of work in these Member States, too.

According to the German Act on Copyright and Related Rights Section 7, “*The author is the creator of the work.*”²¹² French Intellectual Property Code Art. L113-1 defines authorship as “*Authorship shall belong, unless proved otherwise, to the person or persons under whose name the work has been disclosed.*”

On the other hand, even though German law adopts the natural person’s necessity without exception²¹³, French law provides 2 exceptions to the rule: granting economic rights to a natural or legal person in favour of the entrepreneur in the collective works and granting economic rights to the employer in the computer programs.²¹⁴

As can be seen, there is no uniformity in the legal text regarding the requirement of a natural person for an intellectual product to be considered as work in the EU. Nevertheless, it must be acknowledged that in the EU, the fundamental rule (principle of creation) requires that the author of a work must be the person who creates it and, therefore, must be a natural person. However, it is understood that if permitted by the domestic laws of the Member States, legal entities may also be designated as authors of a work in certain circumstances.

4.3.2 Moral and Economic Rights of the Author

Moral rights are sets of rights that regulate the intellectual and moral connection of the author with their work and empower the author to take certain actions in order to protect that connection.²¹⁵ Economic rights, on the other hand, are rights that enable the author to be economically rewarded for the use of their work²¹⁶ and allow the author to obtain income for their work.

²¹² German Act on Copyright and Related Rights. Retrieved April 3, 2023, from <https://www.wipo.int/wipolex/en/text/474263>

²¹³ Okutan Nilsson, G. (2008). Türk Fikir ve Sanat Eserleri Hukukunda Tüzel Kişinin Eser Sahipliği Sorunu, p. 471.

²¹⁴ Ibid, p. 479.

²¹⁵ WIPO. (2017). Understanding Copyright and Related Rights, p. 14. Retrieved January 14, from https://www.wipo.int/edocs/pubdocs/en/wipo_pub_909_2016.pdf

²¹⁶ Ibid.

Since all the EU Member States are parties to the Berne Convention, Member States shall include at least moral and economic rights regulated in the Berne Convention in their national laws. Berne Convention regulates moral rights in Art. 6bis and moral rights consist of two distinct rights: First, *“to claim authorship of the work,” which is also referred to as the right of attribution*, and second, *“to object to any distortion, mutilation or other modification of, or other derogatory action in relation to, the said work, which would be prejudicial to his honor or reputation” which is also used as the right of integrity*. Economic rights that are presented in the Berne Convention consist of several rights, such as the right to recite, *the right of reproduction, the right to make adaptations and arrangements, the right of public performance and of communication to the public of performance, etc.*

On the other hand, Member States may extend the scope of moral and economic rights beyond the minimum standards set by the Berne Convention. As an example, France has expanded the scope and regulated an additional moral right, the right to withdraw the work, to the French Intellectual Property Code²¹⁷

While the EU has made efforts to harmonize economic rights, moral rights have never undergone a serious harmonization process.²¹⁸ Therefore, one of the biggest differences between common and continental law systems regarding copyright manifests itself in moral rights.

In the countries which recognize moral rights, the nuances reflect unique characteristics of each country’s culture.²¹⁹ Therefore, setting aside the distinction between common law and continental law, there is also no unity among continental law countries in terms of moral rights.²²⁰ For instance, the right of integrity is adopted with limitations in Germany and France.²²¹ Germany protects the distortions and mutilations in films or works associated with films, while France does not extend moral rights protection to

²¹⁷ French Intellectual Property Code Art. L121-4.

²¹⁸ Miernicki, M., Ng (Huang Ying), (2021). Artificial intelligence and moral rights. *AI & Soc* 36, p. 319–329. Retrieved January 15, 2023, from <https://doi.org/10.1007/s00146-020-01027-6>

²¹⁹ Gaon, A. H. (2021). *The Future of Copyright in the Age of Artificial Intelligence*. Elgar Law, Technology and Society. <http://gen.lib.rus.ec/book/index.php?md5=A21942C728A7A5931F518E033AA04028> p. 79.

²²⁰ Miernicki, M., Ng (Huang Ying), (2021). Artificial intelligence and moral rights. *AI & Soc* 36, p. 319–329. Retrieved January 15, 2023, from <https://doi.org/10.1007/s00146-020-01027-6>

²²¹ Gaon, A. H. (2021). *The Future of Copyright in the Age of Artificial Intelligence*, p. 81.

architectural works, computer programs, and creations that possess minimal originality.²²²

The main reason behind these differences is the approach of the countries to the copyright in the first place. In continental European countries, moral rights are favoured mainly because of the individual rights and personhood doctrines of civil law countries.²²³ They prioritize moral rights and evaluate copyright as a concept with a close relationship with the person behind the work. On the other hand, Common law countries, which are shaped around commercial orientation, recognized moral rights recently.²²⁴

The different approaches show influence over the debates regarding copyright eligibility of AI-generated and AI-assisted creations. Because of the distinction between the fundamental standpoints of these two different legal systems, suggestions regarding the authorship of AI-generated products vary.

4.4 Computer Programs

The first EU law that governed computer programs is Directive 91/250 EC on the legal protection of computer programs, dated 1991.²²⁵ Later on, this directive was replaced by the 2009/24 EC on the legal protection of computer programs dated 2009. Directive 2009/24 EC is referred to as Computer Programs Directive or Software Directive shortly.

Computer programs are protected as literary work under Art. 2 of the Berne Convention, in accordance with Art. 10 of TRIPS, in the EU. In addition, the 2009/24/EC Software Directive specifically regulates computer programs in the EU and Art. 11 of the Directive also refers to the Berne Convention and regulates that computer programs shall be protected as literary works.

According to Software Directive Art. 1(3), “*A computer program shall be protected if it is original in the sense that it is the author's own intellectual creation. No other criteria*

²²² Ibid, p. 81.

²²³ Ibid, p. 79.

²²⁴ Ibid, p. 79.

²²⁵ Szwed, P. (2022). How are computer programs protected in Europe: copyright or patent protection? Retrieved April 3, 2023, from <https://discoverdigitallaw.com/how-are-computer-programs-protected-in-europe-copyright-or-patent-protection/#:~:text=Consequently%2C%20as%20a%20general%20principle,legal%20protection%20of%20computer%20programs.>

shall be applied to determine its eligibility for protection.” In the Software Directive, the phrase author's own intellectual creation is included, and it is regulated that a computer program will benefit from copyright protection only if this condition is fulfilled. On the other hand, originality in computer programs is evaluated differently than in literary works. According to Preamble 8 of the Software Directive, “*no tests as to the qualitative or aesthetic merits of the program should be applied*” when determining the originality of the computer program.²²⁶

Regarding authorship, the relevant directive provides an exception to the rule that the creator is the author of the work, and it is stipulated that legal persons may also be the author of the work if permitted by the domestic law of the Member State, as it is explained in Section 4.3.1.

The protection granted by the Directive is precisely the code and not the effect it produces.²²⁷ In a case between SAS Institute Inc. and World Programming Ltd. in 2012, the ECJ confirmed that the protected element is only the expression of a computer program and, therefore, the functionality of a computer program, algorithms and programming languages are not protected since they comprise ideas and principles instead of expression.²²⁸

Regarding computer-generated works, on the other hand, the EU has no binding regulations yet. Nevertheless, the EU has published several reports and recommendations that examine the AI and IPRs relationship.

Regarding AI-IP policy, Proposal for a Regulation of the European Parliament and of the Council Laying Down Harmonized Rules on AI (AI Act) and Amending Certain Union Legislative Acts dated 2021, European Parliament resolution of 20 October 2020 on intellectual property rights for the development of artificial intelligence technologies dated 2020, and the EU Parliament Committee on Legal Affairs report with recommendations to the Commission on Civil Law Rules on Robotics dated 2017 are some significant proposals and legislative movements proposed by the EU.

²²⁶ Directive 2009/24/EC, Preamble 8.

²²⁷ Szwed, P. (2022). How are computer programs protected in Europe: copyright or patent protection?

²²⁸ SAS Institute Inc. and World Programming Ltd (2012) Case C-406/10, para. 32.

In the report with recommendations to the Commission on Civil Law Rules on Robotics, the EU's awareness of the challenges computer-generated/AI works may pose is noticeable, and the EU Parliament calls for the EU Commission to create a balanced approach to IPRs when applied to hardware and software standards and codes.²²⁹

AI Act, the first legislative framework that the EU has proposed on AI, deals with the general evaluations of AI but does not contain any provision regarding copyright protection over AI-generated products. There is only one reference in the AI Act to the EU resolution on intellectual property rights for the development of AI technologies, which indicates the EU's opinions and approaches over the specific topic.

The resolution on intellectual property rights for the development of artificial intelligence technologies separates AI-assisted human creations and AI-generated creations and suggests assigning the ownership of the rights to natural or legal persons that created the work lawfully in AI-assisted human creations. This approach is similar to the UK's computer-generated model²³⁰, which is explained in Chapter 6.2.2.2. in detail. Since this chapter is dedicated to the general assessment of copyright in the EU, the EU resolution on intellectual property rights for the development of AI technologies, which regulates some suggestions regarding AI-assisted human creations, is evaluated under Chapter 7.3.3 in detail.

²²⁹ Gaon, A. H. (2021). *The Future of Copyright in the Age of Artificial Intelligence*, p. 110.

²³⁰ *Ibid*, p. 110.

5 ARTIFICIAL INTELLIGENCE

This chapter aims to provide a thorough understanding of the fundamental concepts and principles of AI as they pertain to IP. To this end, this chapter will begin by providing an overview of the emergence, definitions, historical development, and various forms of AI. Subsequently, the chapter will examine recent developments in the field of art in relation to AI. Finally, the chapter will delve into the ethical considerations surrounding AI and argue for the significance of addressing these issues in legal studies pertaining to AI.

5.1 What Is Artificial Intelligence: Definition, Scope, and Types

Although there have been dozens of definitions suggested for AI over the years, according to the definition of scientist John McCarthy, who introduced the term artificial intelligence to our lives for the first time, *“It is the science and engineering of making intelligent machines, especially intelligent computer programs. It is related to the similar task of using computers to understand human intelligence, but AI does not have to confine itself to methods that are biologically observable.”*²³¹

As can be understood from the definition made by McCarthy, AI is a discipline that aims to ensure that a machine or a program carries out the activities that humans are capable of. The main idea behind AI is to think like humans and imitate human behavior via programmed computers or robots.²³²

According to the first legislative document that defines AI in EU, Artificial Intelligence for Europe,²³³ *“Artificial intelligence (AI) refers to systems that display intelligent behaviour by analysing their environment and taking actions – with some degree of autonomy – to achieve specific goals.”* According to the same document, AI not only simplifies our lives but also aids us in tackling some of the globe's most significant issues,

²³¹ McCarthy, J. (2007). What Is Artificial Intelligence? Retrieved January 9, 2022, from <https://www-formal.stanford.edu/jmc/whatisai.pdf>

²³² Majewski, S. (2022, November 21). 7 Key Steps to Implementing AI In Your Business. Retrieved December 22, 2022, from <https://dlabs.ai/blog/how-to-implement-ai-in-your-company/>

²³³ Bayındır, A. S. (2022). Yapay Zeka Teknolojilerinin Ortaya Koyduğu Buluşların Patentlenebilirliği. Yetkin. Ankara. P. 11.

such as treating and diagnosing chronic illnesses, lowering traffic accident fatalities, combating climate change, and identifying cybersecurity hazards.²³⁴

Subsequently, this definition has been redefined by the High-Level Expert Group with the White Paper on Artificial Intelligence - A European Approach to Excellence and Trust.²³⁵ This White Paper highlights that determining the scope of AI's application is crucial for future legal regulations and that its definition should be clearly made. According to the updated definition in the White Paper, *“Artificial intelligence (AI) systems are software (and possibly also hardware) systems designed by humans that, given a complex goal, act in the physical or digital dimension by perceiving their environment through data acquisition, interpreting the collected structured or unstructured data, reasoning on the knowledge, or processing the information, derived from this data and deciding the best action(s) to take to achieve the given goal. AI systems can either use symbolic rules or learn a numeric model, and they can also adapt their behaviour by analysing how the environment is affected by their previous actions.”*

Finally, AI Act Art. 3, includes a definition of AI systems. According to this definition, *“‘artificial intelligence system’ (AI system) is software that is developed using one or more of the techniques and approaches listed in Annex I and is capable of generating outputs such as content, predictions, recommendations, or decisions that influence the environments they interact with, based on a set of human-defined objectives.”*

As can be seen, the EU's definition of AI has evolved over time. The first definition provided is relatively general and focuses on the ability of AI systems to display intelligent behaviour by analyzing their environment and acting to achieve specific goals. The second definition expands on the first by describing the specific processes and techniques used by AI systems, such as data acquisition, interpretation, reasoning, and decision-making. The definition provided by AI Act, on the other hand, focuses on the software that is developed using one or more of the techniques and approaches listed in Annex I and is capable of generating outputs such as content, predictions, recommendations, or decisions that influence the environments they interact with, based

²³⁴ European Commission: Artificial Intelligence for Europe. (2018). Retrieved January 14, 2023, from <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2018%3A237%3AFIN>

²³⁵ European Commission: White Paper on Artificial Intelligence- A European approach to excellence and trust. (2020). Retrieved January 14, 2023, from https://commission.europa.eu/publications/white-paper-artificial-intelligence-european-approach-excellence-and-trust_en

on a set of human-defined objectives. The EU's definition has become more specific and detailed over time as the understanding and knowledge of AI have grown.

5.1.1 Biological and Artificial Intelligence

One of the reasons for discussions over the copyrightability of AI-generated products stems from the question of whether AI can be evaluated as intelligent or not. There are various definitions of AI in the literature, and the common elements in the definitions conceptualized around imitating human behaviours and intelligence, and creating machines that can perform activities that are typically carried out by humans.

According to American Psychology Association's definition, biological intelligence is defined as "*a level of mental ability of presumed biological origins required primarily for cognitive activity.*".²³⁶ The same institution defines AI as "*a subdiscipline of computer science that aims to produce programs that simulate human intelligence.*".²³⁷

Indeed, the principle of functioning of the human brain has been used as a model while developing many AI technologies. Artificial neural networks ("ANN") that resemble the working principles of neurons in the human brain are combined with various AI techniques.²³⁸ In both systems, meaningful results are achieved by the interaction between multi-layered structures and the implementation of the outputs of the previous layer into the next layer as the new input.²³⁹

Although research has been conducted to simulate human intelligence, AI has not yet reached a level that can fully correspond to biological intelligence. However, this does

²³⁶ American Psychology Association. APA Dictionary of Psychology. <https://dictionary.apa.org/biological-intelligence>

²³⁷ American Psychology Association. APA Dictionary of Psychology. <https://dictionary.apa.org/artificial-intelligence>

²³⁸ Slowinsky, P. R. (2021). Rethinking Software Protection. Hilty, R., Lee, J, & Liu, K. (Eds.) Artificial Intelligence and Intellectual Property. Oxford University Press. ISBN: 0198870949,9780198870944 p. 345.

²³⁹ Cevora, G. (2019). The relationship between Biological and Artificial Intelligence. Medium, Toward Data Science. Retrieved March 29, 2023, from <https://towardsdatascience.com/the-relationship-between-biological-and-artificial-intelligence-acaf5fb93e19>

not necessarily mean that AI is inferior. Biological intelligence and AI are not superior concepts to each other but rather different concepts.²⁴⁰

AI is superior to biological intelligence in terms of speed, the capability of working 7/24 without the need for sleep or rest, being less biased, having a bigger memory capacity and making a decision based on more data.²⁴¹ In addition, high-stress levels and emotional states can hinder the effectiveness of biological intelligence, whereas AI does not experience such deficiencies or memory losses without direct intervention.²⁴² Regarding transferring acquired knowledge, AI is also recognized as superior to biological intelligence in speed and quality of the transfer.²⁴³

On the other hand, there are areas where biological intelligence has superior specialties to AI. One of them is the energy requirement for functioning. While modern deep learning machines require approximately 2000 Watts of energy for proper functioning, the human brain requires 25 Watts, only.²⁴⁴ Moreover, the human brain is capable of multitasking as a part of human nature. However, algorithms are generally trained for 1 specific task and will require additional training for new tasks. Movement capability or mobility is another superior feature of a human. Even the most advanced robot can hardly perform the movements of a 6-year-old child after 60 years of development in the sector.²⁴⁵ Besides all these, one of the most important characteristics that set biological intelligence apart from and superior to AI is that biological intelligence can make intuitive and emotional decisions and has the ability to use common sense.²⁴⁶

Even though AI have similarities to biological intelligence, the current form of AI is in a state very different than biological intelligence. This is mainly because although AI may improve new methods to achieve a goal, it is not capable to determine goals to achieve or

²⁴⁰ Gök, B. (2022). Yapay Zeka Sistemleri Tarafından Üretilen Fikri Ürünlerin Telif Hakkı, p. 11

²⁴¹ Dezhic, E. (2017). Artificial vs Neural Intelligence. *Becoming Human: Artificial Intelligence Magazine*, Medium. Retrieved March 30, 2023, from <https://becominghuman.ai/artificial-vs-natural-intelligence-626b6c7addb2>

²⁴² Gök, B. (2022). Yapay Zeka Sistemleri Tarafından Üretilen Fikri Ürünlerin Telif Hakkı, p. 11.

²⁴³ Ibid.

²⁴⁴ Dezhic, E. (2017). Artificial vs Neural Intelligence.

²⁴⁵ Ibid.

²⁴⁶ Gök, B. (2022). Yapay Zeka Sistemleri Tarafından Üretilen Fikri Ürünlerin Telif Hakkı, p. 11.

preferences.²⁴⁷ Determination of goals and preferences still requires human control. Therefore, AI is far from being perceived as genuinely intelligent in its current state.²⁴⁸

Additionally, although the purpose of AI studies is to make intelligent machines that can stipulate human intelligence and carry out the activities performed by humans, whether the machines can truly achieve this in the future still is a mystery. Particularly in the protection of AI-generated products, it should be kept in mind that these two intelligence structures have distinct characteristics, and the scope of protection should be constructed by considering these differences.

5.1.2 Subclasses of Artificial Intelligence: Machine Learning, Deep Learning, and Data Mining

AI is a broad field of study that includes many theories, methods, technologies, and significant subfields, such as ML, deep learning (“DL”), data mining (“DM”), and such.²⁴⁹ ML, DL, and AI are frequently incorrectly used interchangeably. This is primarily due to the fact that these concepts cannot be distinctly separated from one another. A Venn diagram is provided below to illustrate the relationship between these concepts:

²⁴⁷ Spindler, G. (2022). AI and Copyright Law: The European Perspective, p. 258.

²⁴⁸ Ibid, p. 258.

²⁴⁹ Artificial Intelligence What it is and why it matters, (n.d.). Retrieved July 15, 2022, from https://www.sas.com/en_us/insights/analytics/what-is-artificial-intelligence.html

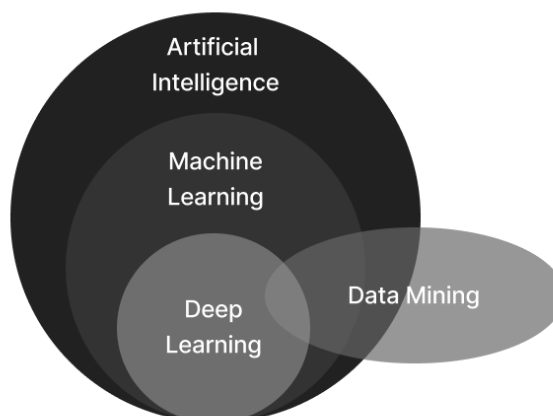


Figure 1: The Taxonomy of the Artificial Intelligence and Data Science Subfields²⁵⁰

As can be seen, although there is a hierarchy among these concepts, there is an overlapping structure. Although there is a hierarchical structure among these concepts, the fields at the top level of the hierarchy do not fully encompass each concept at the lower level.²⁵¹ Therefore, some concepts can be applied to others as well and it would be useful to specify the differences between these concepts.

5.1.2.1 Machine Learning

Machine Learning comprises a wide variety of algorithms that use a dataset to make intelligent predictions.²⁵² The objective of ML is to create algorithms that can learn from previous data and enhance the system's performance with experience for particular tasks.²⁵³ By providing data as input, these algorithms can adapt and modify their internal programming, resulting in improved capabilities to perform specific tasks.²⁵⁴

²⁵⁰ Yalçın, O. G. (2023). Governing Algorithms in the Big Data Era for Balancing New Digital Rights. (Doctoral Dissertation). The University of Bologna. P. 98.

²⁵¹ Ibid.

²⁵² Nichols, J. A., Herbert Chan, H. W., Baker, M. A. B. (2018). Machine learning: applications of artificial intelligence to imaging and diagnosis. *Biophys Rev.* 2019 Feb;11(1):111-118. doi: 10.1007/s12551-018-0449-9. PMID: 30182201; PMCID: PMC6381354.

²⁵³ Yalçın, O. G. (2023). Governing Algorithms in the Big Data Era for Balancing New Digital Rights, p. 95.

²⁵⁴ Kulin, M., Kazaz, T., De Poorter, E., Moerman, I. A. (2021) Survey on Machine Learning-Based Performance Improvement of Wireless Networks: PHY, MAC and Network Layer. *Electronics*, 10, 318. <https://doi.org/10.3390/electronics10030318>

ML is a technique utilized in various domains, such as image and video recognition, natural language processing, speech recognition, music generation, game development, autonomous vehicles, and recommendation systems. For example, Apple's Siri, a speech recognition software, utilizes ML to understand speech and respond to user queries. Similarly, companies such as Netflix, Tesla, IBM, and Microsoft use ML in their recommendation systems and chatbots. ML algorithms are classified into four categories based on the nature of the problem and the data available for the training²⁵⁵: supervised learning, unsupervised learning, semi-supervised learning, and reinforcement learning.

Supervised learning is a type of ML that involves a training dataset consisting of input variables (X) and labeled output variables (Y or target variable) examples. The purpose of the training set is to adjust the parameters of the ML model using the input-output pairs. Once the model is successfully trained, it can be used to predict the target variable for new or unseen data points of the input features X.²⁵⁶ This method is commonly used for classification and regression tasks.²⁵⁷

Unsupervised learning is a method of ML in which the algorithm is presented with previously undefined and unlabeled data, with the aim of discovering certain patterns autonomously.²⁵⁸ The aim of the unsupervised learning is to discover the hidden structures in data.²⁵⁹ An example of unsupervised learning is the use of clustering techniques to group customers or markets into segments based on shared characteristics or behaviours, enabling more specific and personalized communication with target groups.²⁶⁰

Semi-supervised learning is a learning method that combines both supervised and unsupervised learning approaches. When a small amount of labeled data and a large

²⁵⁵ Janiesch, C., Zschech, P. & Heinrich, K. (2021). Machine learning and deep learning. *Electron Markets*, 31, p. 685–695. <https://doi.org/10.1007/s12525-021-00475-2>

²⁵⁶ Ibid.

²⁵⁷ Ibid.

²⁵⁸ Ibid.

²⁵⁹ So, A. M. (2021). *Technical Elements of Machine Learning for Intellectual Property Law*. Lee, J., Hilty, R., & Liu, K. (Eds.) *Artificial Intelligence and Intellectual Property*. Oxford University Press. ISBN: 0198870949, 9780198870944 p. 19.

²⁶⁰ Janiesch, C., Zschech, P. & Heinrich, K. (2021). Machine learning and deep learning. *Electron Markets*, 31, p. 685–695. <https://doi.org/10.1007/s12525-021-00475-2>

amount of unlabeled data are available, semi-supervised learning can be useful.²⁶¹ It has been successfully used in speech analysis, content classification, and protein sequence classification problems.²⁶²

The reinforcement learning method, as defined by its creators Richard S. Sutton and Andrew G. Barto, involves learning “*what to do - how to map situations to actions - so as to maximize a numerical reward signal*”.²⁶³ In this system, instead of providing input and output, the aim is to maximize the total cumulative reward²⁶⁴, and the computer is taught to progress in a certain direction with feedback provided at intervals. The data provided in reinforcement learning is not labeled and this distinguishes it from supervised learning. Although it shares similarities with unsupervised learning in terms of providing unlabeled data, the aim of unsupervised learning is to detect hidden patterns, whereas the goal of reinforcement learning is to achieve the ultimate objective by using trial and error methods and interacting with the environment (receiving feedback) to maximize reward signals.

5.1.2.2 Deep Learning

Deep learning is a subfield of ML that involves training programs to perform human-like tasks using multi-layered neural networks.²⁶⁵ In DL, a multi-layered structure is used, and each consecutive layer processes the output from the previous layer as input.²⁶⁶ The algorithms used in DL can be either supervised or unsupervised.²⁶⁷

²⁶¹ Yalçın, O. G. (2023). Governing Algorithms in the Big Data Era for Balancing New Digital Rights, p. 103.

²⁶² Ibid, p. 103.

²⁶³ Sutton, R. S., Barto, A. G. (2015). Reinforcement Learning: An Introduction. The MIT Press, Second Edition. <https://web.stanford.edu/class/psych209/Readings/SuttonBartoIPRLBook2ndEd.pdf>

²⁶⁴ So, A. M. (2021). Technical Elements of Machine Learning for Intellectual Property Law. Lee, J., Hilty, R., & Liu, K. (Eds.) Artificial Intelligence and Intellectual Property. Oxford University Press. ISBN: 0198870949,9780198870944 p. 23.

²⁶⁵ Zohuri, B., Zadeh, S. (2020) Artificial Intelligence Driven by Machine Learning and Deep Learning. Nova Science Publishers, New York, p.95. Retrieved March 26, 2023, from <https://eds.s.ebscohost.com/eds/ebookviewer/ebook?sid=03d8d08b-383f-4951-992a-380c087db178%40redis&vid=0&format=EB>

²⁶⁶ Şeker, A., Diri, B., Balık, H. H. (2017). Derin Öğrenme Yöntemleri ve Uygulamaları Hakkında Bir İnceleme. Gazi Mühendislik Bilimleri Dergisi, 3(3), p. 48. Retrieved March 22, 2023, from <https://dergipark.org.tr/en/download/article-file/394923>

²⁶⁷ Ibid, p. 48.

What sets DL apart within the field of ML is its multi-layered structures, ANNs that resemble the neural networks in the human brain, and minimal human intervention required to process data. The reduced need for human intervention enables DL to handle larger data sets.²⁶⁸ Compared to other ML algorithms, DL is more useful for processing large and high-dimensional data, including speech, text, image, and audio data.²⁶⁹ In this sense, DL can be considered as scalable ML.²⁷⁰ Virtual assistants like Alexa, Siri, and Cortana use DL to understand speech and learn human language in order to interact with humans.²⁷¹ Similarly, DL algorithms are used in chatbots, autonomous vehicles, facial recognition technologies, image colorization processes, disease and tumor diagnosis, and many other fields.²⁷²

5.1.2.3 Data Mining

Data Mining can be defined as the “*discovery of interesting, unexpected, or valuable structures in large datasets*”.²⁷³ DM typically involves modelling large-scale structures and identifying anomalies in local structures, with the aim of determining whether these anomalies are genuine or merely chance occurrences.²⁷⁴ In other words, DM aims to identify patterns within large datasets or examine differences in specific datasets to determine whether they have occurred by chance and whether they have practical implications.

DM is used for commercial as well as scientific purposes. It is applied in finance, telecommunications, marketing, web analysis, and many other fields for various types of problems such as classification, prediction, association, and detection.²⁷⁵ Processing large

²⁶⁸ Gök, B. (2022). Yapay Zeka Sistemleri Tarafından Üretilen Fikri Ürünlerin Telif Hakkı, p. 28

²⁶⁹ Janiesch, C., Zschech, P. & Heinrich, K. (2021). Machine learning and deep learning. *Electron Markets*, 31, p. 685–695. <https://doi.org/10.1007/s12525-021-00475-2>

²⁷⁰ Gök, B. (2022). Yapay Zeka Sistemleri Tarafından Üretilen Fikri Ürünlerin Telif Hakkı, p. 28

²⁷¹ Marr, B. (n.d.). What Is Deep Learning AI? A Simple Guide With 8 Practical Examples. Retrieved March 27, 2023, from <https://bernardmarr.com/what-is-deep-learning-ai-a-simple-guide-with-8-practical-examples/>

²⁷² Ibid.

²⁷³ Hand, D. J. (2007). Principles of Data Mining. *Drug Safety*, 30(7), p.621. <https://doi.org/10.2165/00002018-200730070-00010>

²⁷⁴ Ibid.

²⁷⁵ Bose, I., Mahapatra, R. K., (2001). Business data mining – a machine learning perspective. *Information & Management*, 39(3), p. 211-225. [https://doi.org/10.1016/S0378-7206\(01\)00091-X](https://doi.org/10.1016/S0378-7206(01)00091-X)

datasets and applying the discovered patterns and meaningful results to decision-making mechanisms can provide significant competitive advantages. For instance, sports clubs use DM techniques to analyze players' strengths and weaknesses and to have an advantage in training them, as well as in matches and seasons, by applying the information obtained from the data.²⁷⁶

Although ML, DL, and DM each have their own strengths, they are implemented collectively to achieve the best results in many cases. For example, in the development of AlphaGo, an AI program that was recognized for defeating one of the world's best Go players Lee Sedol, ML and DM, and DL techniques were utilized. During the training of AlphaGo, the supervised learning method was applied initially by providing data from top Go players to predict the best human expert moves in given position.²⁷⁷ The algorithm was then trained to play Go against itself to predict the winner of games. In this phase, reinforcement learning is applied as the learning method. In the advanced version, AlphaGo Zero, the training process was carried out using only reinforcement learning. That is, without providing the algorithm with datasets from human matches, it was enabled to learn the game and its rules through self-play from the outset.²⁷⁸ Notably, AlphaGo Zero played approximately 4.9 million games during its approximately 3-day training period.²⁷⁹ Despite the differences, both AlphaGo and AlphaGo Zero utilized ML, DL, and DM technologies during the training process.

5.1.3 Deterministic and Nondeterministic Artificial Intelligence

All AI algorithms are either deterministic or nondeterministic. Deterministic algorithms are algorithms where the same result is obtained when the same input is given.²⁸⁰ Each

²⁷⁶ Haghighat, M., Rastegari, H., Nourafza, N. (2013). A Review of Data Mining Techniques for Result Prediction in Sports. *ACSIJ Advances in Computer Science: An International Journal*, 2(5)-6, p. 7-12. Retrieved March 27, 2023, from <https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=37767ab1f559dda7a8d239aec0af1c9485d3d426>

²⁷⁷ Silver, D., Schrittwieser, J., Simonyan, K. et al. (2017). Mastering the game of Go without human knowledge. *Nature* 550, p. 354–359. <https://doi.org/10.1038/nature24270>

²⁷⁸ Ibid.

²⁷⁹ Ibid.

²⁸⁰ Tan Ming En, J., (2022). Non-Deterministic Artificial Intelligence Systems and the Future of the Law on Unilateral Mistakes in Singapore. *Singapore Academy of Law Journal*. p.93. Retrieved March 27, 2023, from <https://journalsonline.academypublishing.org.sg/Journals/Singapore-Academy-of-Law-Journal/Current-Issue/ctl/eFirstSALPDFJournalView/mid/494/ArticleId/1732/Citation/JournalsOnlinePDF>

step that leads AI to the conclusion results from the programmer's decision.²⁸¹ Conversely, nondeterministic algorithms are systems where different outputs may be obtained even if the same input is given.²⁸²

In cases where the programmer has an active intervention, and the process is carried out under the control of this natural person, the causal connection between the programmer and the outcome is preserved. On the other hand, in using nondeterministic AI, the outcome may not be fully under the control of the programmers, and the result might be surprising even for the programmer who manages the process. The causal connection between the programmer and the output is weakened in nondeterministic algorithms.

In the legal context of work and authorship, the extent and limit of human intervention hold paramount significance. For studies conducted utilizing AI, the outcomes resulting from the mere utilization of AI as a tool, as opposed to instances where human intervention is minimal or absent, yield vastly distinct conclusions during the legal examination.

5.1.4 Artificial Narrow, General, and Super Intelligence

There are three types of AI regarding its intelligence. At the present time, only artificial narrow intelligence, which can be seen in so many inventions and smart technologies, is being used. Although other types of AI are still at the hypothetical stage and not certain, some scientists believe that humans will create them in the near future.

5.1.4.1 Artificial Narrow Intelligence

The first type of AI is artificial narrow intelligence (ANI), also known as weak AI, which is designed and trained to solve a particular task under the rules provided.²⁸³ Apple's Siri, Meta's newsfeed generating results based on the user's preferences, Tesla's self-driving cars, and the International Business Machines Corporation ("IBM")'s Watson are examples of the narrow AI that humans currently use. They are created to answer people's particular questions and respond to basic requests such as routing a destination and

²⁸¹ Ibid.

²⁸² Ibid.

²⁸³ Bayındır, A. S. (2022). Yapay Zeka Teknolojilerinin Ortaya Koyduğu Buluşların Patentlenebilirliği, p. 13.

reaching there or calling someone. This type of AI has basic intelligence and is dedicated only to a specific task it is programmed to do.

5.1.4.2 Artificial General Intelligence

Artificial General Intelligence (AGI) is the second type of AI, also known as strong or general AI. General AI refers to the AI system with generalized human cognitive abilities which can understand, learn, solve problems, and make plans for the future like a human without human intervention.²⁸⁴ The demonstration of the presence of general AI would be realized through the identification of its attainment of cognitive abilities equivalent to that of human intelligence.

Whether an AI program reaches human-level intelligence is measured by using the Turing Test. Turing Test was created by British mathematician and logician Alan Turing in 1950.²⁸⁵ Alan Turing published a paper named “Computing Machinery and Intelligence” and explained the formula for detecting whether computer programs have human intelligence or not in this study.²⁸⁶

In the Turing Test, there are three actors: an interrogator, a natural person, and a computer program. The interrogator is placed in a separate room from the natural person and the computer program. The interrogator asks questions that can be mathematical, as well as questions measuring emotional intelligence, to these two competitors via keyboard and monitor. The original Turing Test measures only one skill set: output texts. However, since general AI is more complex than that, in addition to the original version of the Turing Test, textual, visual, and auditory performances of the AI are evaluated with the Extended Turing Test.²⁸⁷

While the interrogator's purpose is to determine which of the competitors is the natural person according to their answers, the success of the computer program is measured by

²⁸⁴ IBM Cloud Education. (2020, August 31). What Is Strong AI? Retrieved December 22, 2022, from <https://www.ibm.com/cloud/learn/strong-ai>

²⁸⁵ Copeland, B. J. (2022, December 19). Alan Turing. Britannica. Retrieved December 22, 2022, from <https://www.britannica.com/biography/Alan-Turing>

²⁸⁶ Turing, A. M. (1950). Computing Machinery and Intelligence. *Mind*, 236. P. 433-460. Retrieved January 10, 2023, from <https://doi.org/10.1093/mind/LIX.236.433>

²⁸⁷ What is Strong AI? (2020, August 31). IBM Cloud Education. Retrieved December 22, 2022, from <https://www.ibm.com/cloud/learn/strong-ai>

answering the questions like a natural person. If the interrogator cannot distinguish the natural person, it means that the computer program deceives the interrogator and wins the game. However, no computer program has yet passed the test. The day a computer program passes the Turing Test will be the day the existence of general AI is proven.

Considering that one of the fastest supercomputers, Fujitsu-built K, simulates a second of neural activity in 40 minutes, the expectation that AGI will be achieved in the near future may be unrealistic.²⁸⁸

5.1.4.3 Artificial Super Intelligence

The third type of AI, artificial super intelligence (ASI), is still at a hypothetical stage. Artificial super intelligence is believed to enable the execution of cognitive activities by humans at a much faster and more efficient rate.²⁸⁹

This term is also referred to as supersmart technologies and the time when the capability of computers will surpass humans.²⁹⁰ The discussion over super intelligence may be remembered from the debate between the founder of Meta, formerly Facebook, Mark Zuckerberg, and Silicon Valley billionaire Elon Musk. Elon Musk is a believer in the idea that one day, ASI could turn against humanity. On the other hand, Zuckerberg stands on the opposite side of the discussion and believes that this is an unrealistic idea.²⁹¹

5.2 AI-generated Products

The utilization of AI within the realm of art is not a new endeavor. In fact, even prior to the emergence of the term of AI, Alan Turing, known as the first person to consider the possibility of creating thinking computers²⁹², collaborated with Lejaren Hiller and

²⁸⁸ Escott, E., (2017, October 24). What are the 3 types of AI? A guide to narrow, general, and super artificial intelligence. Retrieved December 15, 2022, from <https://codebots.com/artificial-intelligence/the-3-types-of-ai-is-the-third-even-possible>

²⁸⁹ Bayındır, A. S. (2022). Yapay Zeka Teknolojilerinin Ortaya Koyduğu Buluşların Patentlenebilirliği, p. 14.

²⁹⁰ Kanade, V., (2022, March 11). What Is Super Artificial Intelligence (AI)? Definition, Threats, and Trends. Retrieved December 22, 2022, from <https://www.spiceworks.com/tech/artificial-intelligence/articles/super-artificial-intelligence/>

²⁹¹ Metz, C. (2018, June 9). Mark Zuckerberg, Elon Musk and the Feud Over Killer Robots. The New York Times. Retrieved July 10, 2022, from <https://www.nytimes.com/2018/06/09/technology/elon-musk-mark-zuckerberg-artificial-intelligence.html>

²⁹² Turing, A. M. (1950). Computing Machinery and Intelligence. *Mind*, 236. P. 433-460, Retrieved January 10, 2023, from <https://doi.org/10.1093/mind/LIX.236.433>

Leonard Isaacson in the 1950s to explore the notion of music composition by a computer within a certain set of rules.²⁹³ Due to these efforts, the Illiac Suite emerged in 1957 and is considered one of the earliest examples of algorithmic composition generated by AI.²⁹⁴ However, it should be noted that there was a human touch in the creation of Illiac Suite.

In recent times, there has been a significant increase in the utilization of AI within the art industry. Initially, artists were using AI programs to recognize and analyze the works created by humans and improve their creativity.²⁹⁵ Later, AI programs have become able to create art pieces with very little or without human intervention. This is where the challenge begins in a regarding products created by AI. Creating products with a low-level human touch or without human intervention puts the subject on a different level, and copyright issues become more challenging. Even though there are no binding legal rules on this subject, some researchers consider copyrights of AI-generated products created by their company's AI programs because they understand that copyright law will be part of these achievements.²⁹⁶

5.2.1 AI-Generated Music

The music industry is one of the prominent areas of art. It is a sector with many producers, performers, and listeners. Due to the possibility of a loss of rights, many people are concerned about the chaos that AI can create in the music industry because of uncertainty regarding copyright ownership over AI-generated musical products.

AI-based songs and musical works have been on the agenda for many years. The research on AI-generated music that began with the Illiac Suite in the 1950s has progressed significantly in the present day. In the early days, composers began to utilize AI as an aid

²⁹³ Ranwala, D. (2020). The Evolution of Music and AI Technology. Watt AI. Retrieved January 14, 2023, from https://watt-ai.github.io/blog/music_ai_evolution

²⁹⁴ Ibid.

²⁹⁵ Ibid.

²⁹⁶ See the statement of the OpenAI company regarding copyright law "*As generative modeling across various domains continues to advance, we are also conducting research into issues like bias and intellectual property rights, and are engaging with people who work in the domains where we develop tools*". Jukebox. (2020, April 30). Retrieved December 26, 2022, from <https://openai.com/blog/jukebox/>

See the statement of Deep AI company regarding copyright law "*All content generated by DeepAI's tools and APIs are free of copyright - you may use them for any legal purpose you wish including commercial use.*" Retrieved March 29, 2023, from <https://deepai.org/terms-of-service/terms-of-service>

in the composition process, thereby asserting that the integration of AI eliminated deficiencies in their creative abilities. David Bowie, British singer, songwriter, and actor, was using a computer program called Verbasizer, created by a friend of him, Ty Roberts, in the 1990s.²⁹⁷ Verbasizer was a custom-made text randomization software, and the lyrics of his song Hallo Spaceboy was written with the help of Verbasizer.²⁹⁸ Bowie was using the program for inspiration only because the outcome was not entirely eloquent and satisfying. The compositions and musical works produced through AI programs had a human touch at the end, similar to that present in the Illiac Suite. In other words, the final composition was not entirely generated by the AI, human intervention was still present. Therefore, the requirement of being a product of the human mind, which is analyzed in depth in Chapter 3 and Chapter 4, was fulfilled and the utilization of AI as a contributing factor did not pose any legal issues.

In 2016, an AI-generated pop song called Daddy's Car was released as the first-ever fully AI-composed song.²⁹⁹ This breakthrough was made possible by researchers at Sony Computer Science Laboratory, who developed a system called Flow Machines.³⁰⁰ Flow Machines composes songs by learning from a vast music database and generates songs in various styles. Daddy's Car, a pop song in the style of The Beatles, was met with great success. Following Daddy's Car, the researchers also released Mister Shadow, a song in the style of Irving Berlin, Duke Ellington, George Gershwin, and Cole Porter.³⁰¹

Following these pioneering efforts, many AI researchers began to create songs through the use of AI programs. Moreover, there is even an AI song contest in the style of the Eurovision Song Contest as of 2020.³⁰²

²⁹⁷ Braga, M. (2016, January 11). The Verbasizer was David Bowie's 1995 Lyric-Writing Mac App. Vice. Retrieved December 22, 2022, from <https://www.vice.com/en/article/xygxpn/the-verbasizer-was-david-bowies-1995-lyric-writing-mac-app>

²⁹⁸ Ibid.

²⁹⁹ Daddy's Car, A Song Composed by AI in the Style of the Beatles (2016, September 27). NextBigWhat. Retrieved December 22, 2022, from <https://nextbigwhat.com/daddys-car-song-composed-artificial-intelligence-style-beatles/>

³⁰⁰ Goldhill, O. (2016, September 24). "Daddy's Car," the first song ever written by AI, is actually pretty good. Quartz. Retrieved December 22, 2022, from <https://qz.com/790523/daddys-car-the-first-song-ever-written-by-artificial-intelligence-is-actually-pretty-good/>

³⁰¹ Mr. Shadow. Genius. Retrieved July 15, 2022, from <https://genius.com/Artificial-intelligence-mr-shadow-lyrics>

³⁰² See the details about the AI Song Contest: <https://www.aisongcontest.com/>

5.2.2 AI-generated Painting

The efforts of AI in the field of painting have recently begun to bigger attention. AI can even create portraits of people who have never existed. Furthermore, these portraits attracted more attention than imagined. For instance, Edmond de Belamy, a fictional character's portrait created by a ML program in a nondeterministic way, sold for 432,500 USD in an auction in New York in 2018.³⁰³ This amount was approximately forty times higher than the estimated value.³⁰⁴

Portrait of Edmond de Belamy is not the only portrait sold out. Even though prices are not as high as Edmond de Belamy, many websites have paintings on sale created by AI programs. For example, an average painting created by Art AI Gallery is listed at around 600 USD, and many artworks already sold can be viewed on the company's website.³⁰⁵

The Next Rembrandt is another noteworthy example of an AI-generated painting that has had a significant impact on the global art community. This project was completed by a diverse group of experts that included data scientists, engineers, historians, and others who worked closely together.³⁰⁶ The project was supported by the Dutch bank ING, which provided funding for the initiative. This project is a landmark in AI and a testament to ML and DL techniques that can produce high-quality and visually stunning art. The project also highlights the increasing role of technology within the art world and points to exciting future directions.

The data collected in The Next Rembrandt, using DL, was analyzed in great detail. As a result of these analyses, it was deemed appropriate to use a Caucasian male with hair on his face and a hat on his head, and a 3D model of a human was created.³⁰⁷ Finally, a portrait was produced using a 3D printer that appears to have been drawn by Rembrandt

³⁰³ Obvious. (n.d.) Edmond De Belamy. [The shadows of the demons of complexity awoken by my family are haunting me.]. Retrieved July 15, 2022, from <https://obvious-art.com/portfolio/edmond-de-belamy/>

³⁰⁴ Frost, N. (2018, October 25). Someone just bought a piece of AI-generated art for \$432,500. Quartz. Retrieved July 10, 2022, from <https://qz.com/quartz/1437876/ai-generated-portrait-of-edmond-de-belamy-sold-for-432500/>

³⁰⁵ See Fairest of Them All: <https://www.artaigallery.com/products/fairest-of-them-all>

³⁰⁶ The Next Rembrandt. (2016, April 5). The Next Rembrandt Can the Great Master Be Brought Back to Create One More Painting? (Video). Retrieved March 29, 2023, from <https://www.Nextrembrandt.Com/>

³⁰⁷ Ibid.

himself. The project was considered a demonstration of the potential of AI and ML in the fields of art and design.³⁰⁸

As can be seen, particularly in the field of painting, AI studies have almost transitioned to mass production and have begun to generate significant economic returns. At this point, determining authorship and the economic and moral rights stemming from such copyrights is significant in regard to these works.

5.2.3 AI-generated Literature

AI has also advanced considerably in terms of creating literary works. AI algorithms present literary works such as lyrics, stories, and novels in seconds by entering a general frame consisting of mood, atmosphere, feeling, or tone.³⁰⁹

One of the important developments in this regard is that Open AI's AI algorithm, which translates natural language into codes, has started creating its own computer code. This new technology, called Codex, has become able to generate programs in 12 coding languages.³¹⁰ Computer programs are regulated under literary and scientific works and are protected by copyright in accordance with the Berne Convention, the TRIPS Agreement, and the WIPO Internet Treaties. However, the situation of a computer program created by an AI program remains unclear in terms of copyright, like other AI-generated products.³¹¹

Furthermore, the Chat GPT announced by OpenAI on November 30, 2022³¹², appears to be more striking than other AI-generated products. I believe that it would be appropriate to learn Chat GPT by inquiring about the technology itself, given that one of the objectives of this master's thesis is to raise awareness of technological advancements in the legal field. Therefore, I have provided the following input to the system:

“Can you describe yourself, your abilities, your capabilities, and your purpose?”

³⁰⁸ Ibid.

³⁰⁹ E.g., Rytr - Best AI Writer, Content Generator & Writing Assistant: <https://rytr.me>

³¹⁰ See OpenAI Codex. (2021, August 10). Retrieved from <https://openai.com/blog/openai-codex/>

³¹¹ Metz, C. (2021, September 9). A.I. Can Now Write Its Own Computer Code. That's Good News for Humans. The New York Times. Retrieved from <https://www.nytimes.com/2021/09/09/technology/codex-artificial-intelligence-coding.html>

³¹² <https://openai.com/blog/chatgpt>

According to the response obtained, Chat GPT describes itself as follows:

“I am a large language model developed by OpenAI, known as Chat GPT. I have been trained on a vast dataset of text and I am able to understand and respond to natural language inputs. My main capabilities include language translation, text generation, and question answering. I can generate text in a wide variety of styles and formats, such as poetry, news articles, and stories. I can also assist in language-based tasks such as summarization, content creation, and language correction. My purpose is to assist users in understanding and working with natural language, and to make tasks that involve natural language processing more efficient and accurate. However, It's important to keep in mind that my abilities and capabilities are based on patterns and associations found in the data I was trained on, and my knowledge is limited to what is present in my training data. My abilities also may be limited by the computational resources available to me, which can affect my response time and accuracy. Additionally, my training data is cut-off in 2021, so I may not have the most recent information and knowledge.”³¹³

Chat GPT has been widely recognized as a revolutionary breakthrough in the field of natural language processing. It has been evaluated as having the ability to provide highly accurate and contextually relevant responses, which has led to its being considered as a potential game changer. Furthermore, it has been suggested by some, including Elon Musk, that Chat GPT has the capability of rendering the concept of homework obsolete for students.³¹⁴ Additionally, the increasing use of Chat GPT by students in New York to complete their homework assignments has been noticed. As a result, the New York City Department of Education and some schools have banned access to Chat GPT.³¹⁵

³¹³ The response generated by ChatGPT on January 27, 2023.

³¹⁴ Jackson, F. (2023). 'Goodbye homework!' Elon Musk claims artificial intelligence programme ChatGPT could allow students to CHEAT thanks to its eerily human-like responses. DailyMail. Retrieved January 14, 2023, from <https://www.dailymail.co.uk/sciencetech/article-11605893/Elon-Musk-claims-AI-programme-ChatGPT-make-homework-redundant-students-use-cheat.html>

³¹⁵ Chakravarti, A. (2023). ChatGPT banned in some New York schools after students found getting their homework done through chatbot. India Today. Retrieved January 14, 2023, from <https://www.indiatoday.in/technology/news/story/chatgpt-banned-in-some-new-york-schools-after-students-found-getting-their-homework-done-through-chatbot-2317581-2023-01-05>

Regarding translation tools such as Google Translate, there is no element in the generated translation that reflects the author's characteristics or expresses originality. Therefore, it is clear that the translations carried out with these tools cannot benefit from copyright protection. However, as in the case of Chat GPT, in the context of an AI that can give different answers to the same input, the elements of originality should be evaluated.

In Chapter 6, whether AI-generated products meet these conditions and their status in terms of copyright will be discussed in detail, but before that, I believe that mentioning the ethical concerns and debates about AI is necessary to understand the concept of AI comprehensively.

5.3 Ethical Concerns Regarding Artificial Intelligence

Ethical debates regarding AI have been ongoing since the day AI took its place on the world's agenda. Although almost everyone agrees about the potential and importance of AI, the possible destructive effects of AI also cause skepticism especially among public and regulatory leaders.³¹⁶ For example, according to Stephan Hawkins, *"Unless we learn how to prepare for, and avoid the potential risks, AI could be the worst event in the history of our civilization."*³¹⁷

The ethical considerations surrounding AI are centered around a number of key topics, including issues of bias, inaccuracies, privacy, and the potential for unfair competition.

AI programs act to achieve a specific purpose using data experienced by humans for centuries. These data include people's experiences, approaches, and social and legal rules. Although these rules and social understanding change over time, they can remain as input data for AI programs. This has two consequences: bias and misrepresentation.

One prominent example of the ethical concerns surrounding AI is the discontinuation of an AI-based recruitment program developed by Amazon due to accusations of discrimination. The program, which was created in 2014, used AI algorithms to analyze resumes and identify top candidates for job openings. However, it was later discovered that the AI program, in which data from the last ten years is processed, did not make its

³¹⁶ Ibid.

³¹⁷ Kharpal, A. (2017, November 6). Stephen Hawking says A.I. could be 'worst event in the history of our civilization.' Retrieved December 22, 2022, from <https://www.cnbc.com/2017/11/06/stephen-hawking-ai-could-be-worst-event-in-civilization.html>

decisions gender-neutral way, especially in technical fields such as software developer jobs.³¹⁸

When the employees of Amazon, Facebook, Apple, Google, and Microsoft, which are called GAFAM companies altogether, are examined, the rate of male employees is much higher than female employees in each of these companies. The highest rate of female employees in the GAFAM companies is in Amazon, which is 45%. In Microsoft, this rate is 29%. The gap even widens when it comes to the ratio of men and women in technical roles in those companies. Amazon has not revealed the percentage of female employees working in technical roles, while the proportion of male employees in technical positions in the remaining four companies is 75% or more.³¹⁹ The AI program developed by Amazon for recruitment had an assumption that male candidates are more suitable for these roles, and it particularly downgraded the resumes that contained the word “women.” Realizing this intolerable discrimination, Amazon has discarded the AI program.³²⁰ The risk of AI-based bias is the potential to exacerbating the existing discrimination structures in society.

Another ethical concern in this regard is misrepresentation. Royal Academy of Engineering, RAEng, conducted a study and campaign to correct the misleading stereotypes perpetuated by the internet. When the AI algorithm developed by RAEng analyzed more than 1,100 photos of engineers on the internet, 63% of the photos on the first page contained hard hats, although only a small percentage of engineers actually wear hard hats in work.³²¹ Although 12% of the sector is composed of women and 9% of Asian people, black people, and other minority groups, they are not well represented.³²²

³¹⁸ Dastin, J. (2018, October 11). Amazon scraps secret AI recruiting tool that showed bias against women. Retrieved December 15, 2022, from <https://www.reuters.com/article/us-amazon-com-jobs-automation-insight-idUSKCN1MK08G>

³¹⁹ Zane, M., (2022, February 24). How Many Women Work in Big Tech? Zippia. Retrieved July 15, 2022, from <https://www.zippia.com/advice/how-many-women-work-in-big-tech/>

³²⁰ Dastin, J. (2018, October 11). Amazon scraps secret AI recruiting tool that showed bias against women. Retrieved December 15, 2022, from <https://www.reuters.com/article/us-amazon-com-jobs-automation-insight-idUSKCN1MK08G>

³²¹ Buttler, R. (2019, November 7). AI algorithm demonstrates widespread misrepresentation of engineers. The Manufacturer. Retrieved December 15, 2022, from <https://www.themanufacturer.com/articles/ai-algorithm-demonstrates-widespread-misrepresentation-of-engineers/>

³²² Ibid.

As a result, AI has come to incorrect conclusions based on the lack of representation and made erroneous inferences.

The protection of personal data is also a significant concern with AI technology. AI systems can gather information in multiple ways, for example through smart devices, virtual assistants, and surveillance cameras, as well as through the unwarranted sharing of personal data on social media platforms. All of these data sources can be used to train and operate AI systems.³²³ Besides these, companies use AI algorithms for customer experience purposes such as analyzing customers' buying patterns and providing personalized offers. However, according to the research conducted by Genpact, 71% of the respondents stated that they prioritize their privacy over an enhanced customer experience.³²⁴

It would not be wrong to say that privacy concerns regarding AI programs are taken into consideration by some countries. The reasons for requests to ban facial recognition technology ("FRT") in some states in the US and EU are to prevent privacy infringement of individuals and loss of rights that AI algorithms can cause, such as wrongful arrests due to misidentification by FRTs.³²⁵

In the US, there have been at least three instances of wrongful arrests due to misidentification caused by the use of FRT by law enforcement agencies.³²⁶ Although the police forces use FRTs to ensure public safety, on the contrary, it led to the collection of personal data on a large scale and violating of the rights of individuals. In all three cases mentioned, the individuals affected were Black men, which is seen as a demonstration of how these algorithms can be biased and unreliable, in addition to privacy concerns.³²⁷

³²³ ThinkML Team. (2021, September 19). Is AI a Threat to Privacy? ThinkML. Retrieved from <https://thinkml.ai/is-artificial-intelligence-a-threat-to-privacy/>

³²⁴ Genpact. (2017) The consumer: Sees AI benefits but still prefers the human touch. Retrieved January 14, 2023, from <https://website-files.genpact.com/files/the-consumer-sees-ai-benefits-but-still-prefers-the-human-touch.pdf>

³²⁵ Bischoff, P. (2021, June 8). Facial recognition technology (FRT): 100 countries analyzed. Comparitech. Retrieved December 15, 2022, from <https://www.comparitech.com/blog/vpn-privacy/facial-recognition-statistics/>

³²⁶ Benedict, T.J. (2022). The Computer Got It Wrong: Facial Recognition Technology and Establishing Probable Cause to Arrest. *Washington and Lee Law Review* 849, 79(2). p. 849-898.

³²⁷ Ibid.

Despite these risks, many countries continue to use FRTs in various settings, such as airports, financial institutions, workplaces and even schools.³²⁸

In addition to bias, misrepresentation, and privacy, another issue that raises concerns about AI is the possibility of eliminating the competition. Huge companies like Google, Facebook, Amazon, and Apple hold a great power: data. These companies use the data they have to develop consumer experience and generate income by selling it to other companies. In the EU, competition law prohibits all kinds of practices that eliminate competition within the understanding of the free market, such as concerted practice, cartel agreements to prevent monopolization, and mergers and acquisitions that may cause the elimination in the market.³²⁹ The main reasons for the concerns regarding AI in competition law are the possibility of creating a monopoly due to large companies using the data they obtained in their AI programs, in addition to transparency and accountability concerns in terms of inspection.³³⁰

While ethical concerns may seem thrown out of focus by many in terms of its relationship with copyright protection over AI-generated products, AI is a multidisciplinary field, and these concerns need to be considered to provide comprehensive insights into the issue. An approach that will be adopted and a law that will be enacted affect other fields of law and disciplines, too. Therefore, before a legal regulation regarding AI-generated products' copyright protection is made, the issue should be evaluated from all aspects, including ethical concerns.

³²⁸ Bischoff, P. (2021, June 8). Facial recognition technology (FRT): 100 countries analyzed. Comparitech. Retrieved December 15, 2022, from <https://www.comparitech.com/blog/vpn-privacy/facial-recognition-statistics/>

³²⁹ See Case M.7217 – Facebook/Whatsapp and Case M.8124- Microsoft/LinkedIn.

³³⁰ Scheuerer, S. (2021, January 12). AI and Unfair Competition – Unveiling an Underestimated Building Block of the AI Regulation Landscape. Faculty of Law Blogs / University of Oxford. Retrieved December 22, 2022, from <https://www.law.ox.ac.uk/business-law-blog/blog/2021/01/artificial-intelligence-and-unfair-competition-unveiling>

6 INTERSECTION OF ARTIFICIAL INTELLIGENCE AND COPYRIGHT

AI programs are a sub-branch of computer programs in the technical sense. If they meet the conditions set by the laws, computer programs enjoy copyright protection as literary work under Art. 2 of the Berne Convention. On the other hand, the issue regarding copyright protection of AI-generated products is much more complex and is one of the most discussed topics in this thesis and IP law globally. It is suggested that computer-generated products may be considered non-eligible for copyright protection under current legislation due to the absence of the criteria of originality and authorship as referred to a natural person.³³¹ However, the applicability of this suggestion is controversial.

This chapter provides a comprehensive examination of the copyright protection of AI programs, AI-assisted products, and AI-generated products. It also examines the legal approach of international legislation that applies to the EU and Turkey, as well as landmark cases on this issue brought before courts or copyright offices in different countries.

6.1 Artificial Intelligence with Different Utilizations

The issue of copyright protection in relation to AI can be considered in three ways: copyright protection over the AI program itself, copyright protection in works created with the assistance of an AI program (AI-assisted products), and copyright protection on AI-generated products.

6.1.1 Artificial Intelligence as a Computer Program

Computer programming is the process of giving a set of instructions to a computer or software to perform a certain action through any kind of code, language, notation, or form.³³² In short, computer programs can be defined as the way humans communicate

³³¹ Guadamuz, A. (2017, October). Artificial Intelligence and copyright. WIPO Magazine. Retrieved July 15, 2022, from https://www.wipo.int/wipo_magazine/en/2017/05/article_0003.html#:~:text=Artificial%20intelligence%20is%20already%20being,used%20and%20reused%20by%20anyone.

³³² Güneş, İ. (2022). Uygulamada Fikir ve Sanat Eserleri Kanunu, p. 78.

with machines to perform requested actions.³³³ This communication takes place through programming languages and codes in general.

In the current legal systems applicable in the EU and Türkiye, protection over computer programs is crystal clear. According to the international agreements to which Türkiye and the EU are parties, namely the TRIPS Agreement, WIPO Internet Treaties, and Berne Convention, computer programs are under the umbrella of copyright protection as literary works. Regardless of the type, all computer programs benefit from copyright protection.³³⁴

AI programs are software capable of behaving intelligently³³⁵ and aiming to mimic human behaviours. From the legal perspective, since an AI program is a form of a computer program, there is no specific treatment for AI programs different from other computer programs regarding copyright protection. It is worth noting that the scope of the protection does not encompass algorithms and the concept; it only covers codes.³³⁶

Determination of the author of computer programs may not be the same as determining the authorship in other literary and artistic works. In a very simple explanation, the author of a computer program is the person who creates the program's code and has control over making the program.³³⁷ There is no ambiguity when one person creates the program, but programs are being developed by a group of programmers in general. These features of computer programs create a challenge to determine the author when there is more than one person attributable to the computer program.³³⁸ Although identifying the author of a program is more complex than a literary work, it is possible with the help of techniques

³³³ Grand Canyon University. (2020, September 25). Why Is Computer Programming Important? Retrieved December 22, 2022, from <https://www.gcu.edu/blog/engineering-technology/computer-programming-importance>

³³⁴ Yılmaztekin, H. K. (2021). *Yapay Zekanın Eser Sahipliği*, p. 172.

³³⁵ Expert.ai Team (2016, March 24). Retrieved July 15, 2022, from <https://www.expert.ai/blog/artificial-intelligence-software-definition/#:~:text=Artificial%20intelligence%20software%20definition%3A%20%E2%80%9CSoftware,solving%2C%20perception%2C%20knowledge%20representation.>

³³⁶ Spindler, G. (2022). *AI and Copyright Law: The European Perspective*. p. 267.

³³⁷ Dickinson, R. (2020, March 18). Do you even code, bro? - Who is the owner of a computer program. Retrieved December 22, 2022, from <https://www.golegal.co.za/computer-program-code/>

³³⁸ Krsul, I., & Spafford, E. H., (1997). Authorship Analysis: Identifying the Author of a Program. *Computers & Security*, 16(3). pp. 233-257. Retrieved July 15, 2022, from [https://doi.org/10.1016/S0167-4048\(97\)00005-9](https://doi.org/10.1016/S0167-4048(97)00005-9)

developed over the years.³³⁹ Therefore, there is no legal uncertainty for the authorship and the eligibility of a computer program or AI program itself in the EU and Turkish laws.

6.1.2 Artificial Intelligence as an Assistive Tool

Works produced with the aid of AI are instances of AI technologies being utilized by a natural person to create an output. An example of using AI programs as an assistive tool can be found in the images taken by smartphones and digital cameras. Most cameras are equipped with both a computer processor and software that render photography an automatic process.³⁴⁰ Nevertheless, it is the person behind the camera who determines the composition, identifies the elements to be included within the frame, and ultimately creates the photograph.³⁴¹ In such a scenario, it is not conceivable that AI would hold a dominant position in terms of the resulting outcome. Using an AI or a computer program as an assistive tool has been likened to using a pen or paper when writing.³⁴² Accordingly, since AI is only being utilized as a tool, conditions such as creativity and originality are upheld by the natural person operating the program.

When a natural person creates a work using auxiliary tools such as machines, apparatus, or automations, the use of such tools does not eliminate the quality of the created product as a work.³⁴³ Therefore, there is no obstacle to human creators holding authorship in works that are created by using machines.³⁴⁴ Accordingly, when AI is used merely as a tool, existing copyright laws shall be applied.³⁴⁵

This issue is also addressed in the EU resolution on intellectual property rights for the development of artificial intelligence technologies, and it is suggested that AI-assisted

³³⁹ Ibid.

³⁴⁰ Hristov, K. (2017). Artificial Intelligence and the Copyright Dilemma. IDEA - The Journal of the Franklin Pierce Center for Intellectual Property, 57(3). P. 435.

³⁴¹ Ibid.

³⁴² Guadamuz, A. (2017, October). Artificial Intelligence and copyright. WIPO Magazine. Retrieved July 15, 2022, from https://www.wipo.int/wipo_magazine/en/2017/05/article_0003.html#:~:text=Artificial%20intelligence%20is%20already%20being,used%20and%20reused%20by%20anyone.

³⁴³ Kılıçoğlu, A. M. (2021). Sınai Haklarla Karşılaştırmalı Fikri Haklar, p. 111.

³⁴⁴ Yılmaztekin, H. K. (2021). Yapay Zekanın Eser Sahipliği, p. 148.

³⁴⁵ Lambert, P., (2017, July 8). Computer Generated Works and Copyright: Selfies, Traps, Robots, AI and Machine Learning, European Intellectual Property Review. July 15, 2022, from <https://doi.org/10.31228/osf.io/np2jd>

human creations and AI-generated creations should be evaluated differently.³⁴⁶ It has been stated that AI is used as a tool in AI-assisted human creations and remains within the scope of current legal rules according to Art. 14 of the resolution.³⁴⁷

From a different point of view, Max Planck Institute (“MPI”) approaches AI-assisted outputs from the perspective of the assessment of the extent of human creativity involved and considers it as a case-dependent issue.³⁴⁸ According to MPI, the salient point of the discussions regarding the copyrightability of the works created with AI should be determining the precise threshold of human guidance for protection since there is no fully autonomous AI in the current state of technology.³⁴⁹

6.1.3 Artificial Intelligence as a Creator

AI-generated product refers to the creation of output by AI without human intervention and implies the situations where AI is able to adjust its behaviours while functioning to react to unanticipated data or events, according to WIPO’s definition.³⁵⁰ Max Planck Institute, explains the concept as outputs generated autonomously.³⁵¹ AI-generated products can be observed in scenarios where the output produced by the computer separates from the author of the computer program.³⁵²

³⁴⁶ European Parliament resolution of 20 October 2020 on Intellectual property rights for the development of artificial intelligence technologies. (2020/2015(INI))

³⁴⁷ “14. Points out the difference between AI-assisted human creations and AI-generated creations, with the latter creating new regulatory challenges for IPR protection, such as questions of ownership, inventorship and appropriate remuneration, as well as issues related to potential market concentration; further considers that IPRs for the development of AI technologies should be distinguished from IPRs potentially granted for creations generated by AI; stresses that where AI is used only as a tool to assist an author in the process of creation, the current IP framework remains applicable”

³⁴⁸ Drexler, J., Hilty, R. M., et al. (2021). Artificial Intelligence and Intellectual Property Law Position Statement of the Max Planck Institute for Innovation and Competition of 9 April 2021 on the Current Debate, p. 5.

³⁴⁹ Ibid, p. 21.

³⁵⁰ WIPO Conversation on Intellectual Property (IP) And Artificial Intelligence (AI), (2020). Revised Issues Paper on Intellectual Property Policy and Artificial Intelligence, Second Session. Retrieved May 17, 2023, from https://www.wipo.int/edocs/mdocs/mdocs/en/wipo_ip_ai_2_ge_20/wipo_ip_ai_2_ge_20_1_rev.pdf p. 4.

³⁵¹ Drexler, J., Hilty, R. M., et al. (2021). Artificial Intelligence and Intellectual Property Law Position Statement of the Max Planck Institute for Innovation and Competition of 9 April 2021 on the Current Debate, p. 21.

³⁵² Lambert, P. (2017, July 8). Computer Generated Works and Copyright: Selfies, Traps, Robots, AI and Machine Learning, European Intellectual Property Review. July 15, 2022, from <https://doi.org/10.31228/osf.io/np2jd>

To evaluate the possible situations in AI-generated products' eligibility for copyright, remembering AI algorithms according to the functionality might be useful: deterministic algorithms and nondeterministic algorithms.³⁵³

As an example of a deterministic algorithm, Google Translate can be given. Google Translate is being trained with billions of sentences and language structures by programmers, and once it completes the training process, it ultimately has one goal: to do the best translation. Even if the same text is entered by different users or at different times, Google Translate produces the same translation.

In principle, translations enjoy copyright protection according to the Berne Convention Art. 2/3, "*Translations, adaptations, arrangements of music and other alterations of a literary or artistic work shall be protected as original works without prejudice to the copyright in the original work.*" However, the criteria set by the Berne Convention, which reflects the author's own intellectual creation, should be fulfilled for a creation to be considered work. Therefore, it is questionable whether the translations generated by Google Translate are protected as a work.³⁵⁴

For a translation to enjoy copyright protection, it should contain originality attributable to its author. In Google Translate or any other automatic translation tool, there is no element reflecting the characteristics or inner world of the author. Therefore, a translation shall not be deemed as work in the legal sense and cannot enjoy copyright protection.³⁵⁵ Similarly, Tekinalp asserts that computer-generated translations cannot be considered work since the translations are the product of mechanical activity instead of intellectual effort.³⁵⁶ Even though these translations are not eligible to be considered work, Google does not want this unpleasant possibility to frighten its user and regulates the following provision under the Terms of Service: "*Your content remains yours, which means that you retain any intellectual property rights that you have in your content.*"³⁵⁷

³⁵³ Detailed information can be found in Chapter 5.1.3.

³⁵⁴ Szwed, P., (2020, August 30). Are Google translations copyrighted in the EU? Discover Digital Law. Retrieved December 18, 2022, from <https://discoverdigitallaw.com/are-google-translations-copyrighted-in-the-eu/>

³⁵⁵ Kılıçoğlu, A. M. (2021). Sınai Haklarla Karşılaştırmalı Fikri Haklar, p. 112.

³⁵⁶ Tekinalp, Ü. (2005). Fikri Mülkiyet Hukuku, p. 106.

³⁵⁷ See Google Policy: <https://policies.google.com/terms?hl=en-US#toc-permission>

The traditional deterministic approach was an evaluation metric for the assessment of the copyrightability and the authorship of works created with the help of digital tools previously. According to this approach, works created by digital tools should be attributed to the person who uses the digital tools since there is foreseeability in the outcome.³⁵⁸ However, with the emergence of AI, the situation has changed, and more or less unpredictability issue has emerged. This is mainly because the author who uses AI sets the goals and makes preferences, but the main part of the creativity is done by AI.³⁵⁹

As for nondeterministic algorithms, on the other hand, different outputs can be obtained even if the same input is given in nondeterministic algorithms, just like the ML algorithm developed by Obvious, the creator of the portrait of Edmond de Belamy. As the given input becomes specific, the similarity rate of the output increases. This also means that the same AI program may produce different outcomes each time if the inputs are given broadly. At this point, it can be said that the user or programmer's causal connection with the outcome has weakened considerably because the programmer or user cannot predict the outcome. Similarly, in *The Next Rembrandt*, a group of experts worked on the project to create a new portrait in the style of the famous Dutch painter Rembrandt. In the project that utilizes ML, DL, and DM technologies, it was not entirely clear to anyone involved in the project what the resulting work would look like.

The legal status of products generated solely by AI has not been clearly regulated in any legal system. International treaties, such as the Berne Convention, WIPO Internet Treaties, and the TRIPS Agreement, do not contain any provision regarding AI-generated (or computer-generated) works, although computer programs and databases are under protection. Similarly, there is no specific provision regarding the copyright protection of computer-generated products in the FSEK and the EU Members' domestic legislation, except in Ireland. In terms of these countries, the determination of whether AI-generated products can be evaluated as works are decided through the interpretation of other provisions, such as the conditions for an output to be considered work or main provisions for authorship. However, Ireland, which is a Member of the EU and a Contracting Party of the Berne Convention, has regulated that computer-generated works are under copyright protection in its domestic law.

³⁵⁸ Spindler, G. (2022). *AI and Copyright Law: The European Perspective*, p. 260.

³⁵⁹ *Ibid*, p. 260.

At the EU level, although not legally binding, the Resolution on Intellectual Property Rights for the Development of Artificial Intelligence Technologies presents an approach concerning the legal protection of AI-generated products. In the Resolution, which suggests separating AI-assisted human creations and AI-generated creations, it has been stated that granting copyright protection to AI-generated products will not be possible due to the fact that a work created by AI cannot meet the originality requirement in light of current legal regulations.³⁶⁰ Similarly, MPI explicitly stated that outputs created autonomously by AI are not eligible for copyright protection according to current copyright rules.³⁶¹

It is important to highlight that there are opposite arguments for attributing the authorship to the human author who uses AI, even though there is a lack of predictability in the outcome due to reasons that a creative choice has several steps, such as conception/preparation, execution and finalisation, and creativity can also be found in the final reduction of the work.³⁶² However, the prevailing opinion is contrary to consider AI-generated products as eligible for copyright protection or attribute the authorship to the human author who uses the AI. Nonetheless, there are practices in some countries that deviate from the general consensus, and it is important to review some noteworthy approaches of different legal systems for the copyrightability of AI-generated products specifically.

6.2 Countries' Approaches and Landmark Cases

6.2.1 Turkish Law

According to the FSEK, for a work to benefit from copyright protection, the following conditions must be met; the tangible medium of expression, objective condition, which refers to including one of the work types in the FSEK; and subjective condition, which means bearing the characteristics of the author.

³⁶⁰ European Parliament resolution of 20 October 2020 on Intellectual property rights for the development of artificial intelligence technologies. (2020/2015(INI))

³⁶¹ Drexler, J., Hilty, R. M., et al. (2021). Artificial Intelligence and Intellectual Property Law Position Statement of the Max Planck Institute for Innovation and Competition of 9 April 2021 on the Current Debate, p. 21.

³⁶² Spindler, G. (2022). AI and Copyright Law: The European Perspective, p. 260.

In AI-generated products, tangible medium of expression criteria is easy to fulfil because the works created by an AI software program are expressed with codes and programming languages. The objective condition, which can be described as including one of the workgroups regulated in the FSEK, can also be easily met. For instance, AI-generated paintings can be considered works of fine art. Musical compositions composed by AI programs can be classified as musical works. Therefore, if an AI-generated product is included in one of the work categories listed in the FSEK, the objectivity condition is deemed fulfilled. The final condition to be sought is bearing the characteristics of the author, which AI fails to satisfy.

Bearing the characteristics of the author condition, also known as the subjective condition, is a prerequisite for granting copyright protection over an intellectual creation. The author's characteristic is a concept that reflects the author's inner world and expresses the originality of the work. Although there is no consensus in the doctrine regarding the meaning of this condition³⁶³, the Turkish Court of Cassation concluded that work should not be ordinary and have a certain level of creativity to meet the subjective condition in a case.³⁶⁴

With regard to the perspective of the law of persons, there was a necessity to be a natural person for authorship in the FSEK until 2004.³⁶⁵ Although it might be thought that non-human beings have become eligible for authorship by removing the expression of the natural person from the FSEK, it is not possible for a legal person³⁶⁶ and non-human beings to be authors. Natural person necessity for the authorship and for a work to be considered a work in the legal sense is explicitly expressed by the scholars in the doctrine.³⁶⁷ The Turkish Court of Cassation highlighted that in many of its decisions conducted after the removal of the natural person phrase in the 2004 amendment, legal entities cannot be considered as the authors of works and that even if economic rights are

³⁶³ Detailed information can be found in Chapter 3.1.1.2.

³⁶⁴ Turkish Court of Cassation 11. HD, E. 2006/7694 K. 2007/10079. (www.lexpera.com.tr)

³⁶⁵ The phrase “natural” for the authorship has been removed with the Article 28 of the Law no. 5101 dated 3/3/2004.

³⁶⁶ Yılmaztekin, H. K. (2020). Fikir ve Sanat Eserleri Kanunu Uyarınca Eser Sahipliği ve Hak Sahipliği ile Bunların Tecavüz Davaları Bağlamında Davacı Sıfatına Etkileri. *Adalet Dergisi*, Volume 65. P. 499-557. Retrieved July 15, 2022, from <https://dergipark.org.tr/en/download/article-file/1468212>

³⁶⁷ Tekinalp, Ü. (2005). *Fikri Mülkiyet Hukuku*, p.106; Erel, Ş. N. (2009). *Türk Fikir ve Sanat Hukuku*, p. 87; Güneş, İ. (2022). *Uygulamada Fikir ve Sanat Eserleri Hukuku*, p. 116; Kılıçoğlu, A. M. (2021). *Sınai Haklarla Karşılaştırmalı Fikri Haklar*, p. 111.

transferred, moral rights are inalienable and untransferable rights and will remain with the author.³⁶⁸ The condition of bearing the characteristic of the author, which is explained with concepts such as originality and creativity in the Court of Cassation decisions and the doctrine, can only be found in works that are the product of the human mind.³⁶⁹

Accordingly, Art. 48 of the FSEK specifies that while economic rights can be the subject of legal transactions and can be transferred, moral rights are inalienable personal rights and cannot be transferred.³⁷⁰ Even if the author transfers economic rights, the moral rights continue to remain with the author. It is nothing but the economic rights that a legal person can acquire, which are transferred by the author.³⁷¹

As a result, it is established in Turkish law that for an intellectual creation to be considered as work, it must be created by a natural person. This principle is consistently upheld both in doctrine and decisions of the Court of Cassation. As such, it can be concluded that under Turkish law, authorship cannot be attributed to AI and AI-generated products are not eligible for copyright protection due the lack of originality condition. However, it should also be noted that there have been no known cases brought before Turkish courts regarding the copyright of AI-generated products. Therefore, it is currently unclear as to how Turkish courts would rule in a case involving a creation in which the influence of AI is more prominent.

6.2.2 The European Union and the UK

Although general harmonization has been achieved within the EU through the decisions of the European Court of Justice, EU legislation, and international agreements, complete legal uniformity has not yet been fully realized. Specifically, copyright is the least harmonized IPR in the EU.³⁷² This is due in part to certain areas of law being left to the jurisdiction of Member States but also as a result of the variations between common law and continental legal systems.

³⁶⁸ E.g., Turkish Court of Cassation, 11. HD E. 2007/10504 K. 2009/5482. (www.lexpera.com.tr).

³⁶⁹ Ercan, C. (2021). Fikri Hak Kavramı ve Eser Sahibinin Manevi Haklarının Genel Anlamda Kişilik Hakkıyla İlişkisi, TAAD, 12(46). p. 377-412.

³⁷⁰ Ercoşkun Şenol, H. K. (2013, January 3). Mali Hakları veya Kullanım Hakkını Devralanların Fikir ve Sanat Eserleri Kanunu Kapsamında Korunması. Hacettepe Hukuk Fakültesi Dergisi, 3(1). p. 45-64.

³⁷¹ Güneş, İ. (2022). Uygulamada Fikir ve Sanat Eserleri Kanunu, p. 115.

³⁷² Derclaye, E., & Leistner, M. (2011). Intellectual property overlaps: A European perspective, p. 31.

Among the EU countries, most of the countries have come from the continental law tradition, also called civil law or Romano-Germanic legal systems³⁷³, but there is one Member State that has a legal system that encompasses both common law and continental law principles, Ireland. This variation in legal systems among EU Member States can result in different perspectives on copyright protection.

In the continental law system, the author's right model is adopted, and the author is at the center of the copyright system. The core concept in this system is originality, and moral rights play a significant role.³⁷⁴ On the other hand, in the common law system, the copyright model is adopted, and skill and labour doctrine is the key approach. Financial rewards and remuneration for the effort are more important concepts in this copyright model.³⁷⁵

This difference comes to the fore even more in copyright eligibility assessment of AI-generated products because the ECJ evaluates the concept of originality with the criteria such as the author's intellectual creation, personal touch, and creativity.³⁷⁶ Due to the principle of creation in the copyright, continental law countries adopt the idea that a work must be a result of intellectual activity. However, since the skill and labour doctrine have a dominant effect in the Common Law system, the copyright model may not cause a conflict with granting authorship for AI-generated products since the copyright system is shaped by the remuneration and financial reward approaches instead of the author's right. Accordingly, the UK and Ireland have included copyright protection over computer-generated programs in their national laws even though the authorship is given to the natural person who made the necessary arrangements. Applicability of this approach, where the originality and authorship are separated from each other, may not be in line

³⁷³ Louisiana State University. (n.d.). What is the Civil Law? Retrieved July 15, 2022, from <https://www.law.lsu.edu/clo/civil-law-online/what-is-the-civil-law/#:~:text=Civil%20law%20systems%2C%20also%20called,by%20local%20custom%20or%20culture.>

³⁷⁴ The UK Intellectual Property Office. (2021). Artificial intelligence call for views: copyright and related rights. Retrieved January 15, 2023, from <https://www.gov.uk/government/consultations/artificial-intelligence-and-intellectual-property-call-for-views/artificial-intelligence-call-for-views-copyright-and-related-rights>

³⁷⁵ Ibid.

³⁷⁶ Detailed information can be found in Chapter 4.2. and 4.3.1.

with the continental law approach since the copyright is considered strictly related to the moral rights and inner world of the author.

6.2.2.1 EU Members with Continental System

Most of the EU Members' domestic laws do not contain any provision regarding computer-generated works, and no exception is regulated for these creations. Therefore, the fundamental conditions, which are personhood and originality, are applicable.³⁷⁷

When the domestic laws of the EU Member States are examined, it is seen that around half of the domestic laws of the EU Member States contain the phrase natural person when defining the author of a work.³⁷⁸ In Member States such as Spain, Germany, France, and Italy, the criterion of work of the minds is considered when evaluating originality, and it is highlighted as a common feature that the existence of a human author is required for a creation to be considered work since this condition can only be met by a human.³⁷⁹

In the Painer, Cofemel, and Funke Medien Cases, the ECJ stressed that creative and free choice is necessary to satisfy the originality condition for the authorship.³⁸⁰ In the Painer Case, the Court also ruled that creating works with the help of a machine or device is entirely possible.³⁸¹ As explained before, in cases where AI is used only as a tool, current copyright provisions shall be applied for determining the existence of work and the provisions of authorship.³⁸²

³⁷⁷ Gaon, A. H. (2021). *The Future of Copyright in the Age of Artificial Intelligence*, p. 108.

³⁷⁸ European Parliament Research Service, (2018, June). *Copyright Law in the EU, Salient features of copyright law across the EU Member States*. Retrieved December 22, 2022 from [https://www.europarl.europa.eu/RegData/etudes/STUD/2018/625126/EPRS_STU\(2018\)625126_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2018/625126/EPRS_STU(2018)625126_EN.pdf)

³⁷⁹ Scannel, B. (2022). When Irish AIs are smiling: could Ireland's legislative approach be a model for resolving AI authorship for EU member states? *Journal of Intellectual Property Law & Practice*, 17(9), p 727-740. p. 731. <https://doi.org/10.1093/jiplp/jpac068>

³⁸⁰ Hugenholtz, P.B., Quintais, J.P. (2021). *Copyright and Artificial Creation: Does EU Copyright Law Protect AI-Assisted Output?*

³⁸¹ Ibid.

³⁸² Lambert, P., (2017, July 8). *Computer Generated Works and Copyright: Selfies, Traps, Robots, AI and Machine Learning*, *European Intellectual Property Review*. July 15, 2022, from <https://doi.org/10.31228/osf.io/np2jd>

In the current situation, all AI-generated products are conducted more or less under the supervision of a natural person, but what should be the scope of the human contribution to satisfy the author's own intellectual creation/originality conditions?

In cases where the natural person has no effect on the work created by the computer program, the result of this situation shall be granting no copyright protection over AI-generated products.³⁸³ Since creativity is considered directly related to a natural person, AI-generated products created solely by AI are left out of the copyright protection by the EU resolution on Intellectual Property Rights for the Development of Artificial Intelligence Technologies, too.³⁸⁴

On the other hand, Trends and Developments in Artificial Intelligence: Challenges to the Intellectual Property Rights Framework Final Report³⁸⁵, prepared by the European Commission in 2020, approaches the debate from a different angle.³⁸⁶ In the report, AI-assisted outputs used as a comprehensive term which encompasses AI-generated outputs.³⁸⁷

According to the report, 4 steps test should be applied for the assessment of an AI-assisted product's copyright eligibility. According to report the condition to be fulfilled are as follows “*the output is (1) a “production in the literary, scientific or artistic domain”; (2) the product of human intellectual effort; and (3) the result of creative choices that are (4) “expressed” in the output*” for an AI-assisted product to enjoy copyright protection.³⁸⁸

In the report, phases of creative work are divided into 3 steps: “*conception (design and specifications), execution (producing draft versions) and redaction (editing, refinement,*

³⁸³ Drexl, J., Hilty, R. M., et al. (2021). Artificial Intelligence and Intellectual Property Law Position Statement of the Max Planck Institute for Innovation and Competition of 9 April 2021 on the Current Debate, p. 21.

³⁸⁴ European Parliament resolution of 20 October 2020 on Intellectual property rights for the development of artificial intelligence technologies. (2020/2015(INI))

³⁸⁵ European Commission, Directorate-General for Communications Networks, Content and Technology, Hartmann, C., Allan, J., Hugenholtz, P. et al., (2020) Trends and developments in artificial intelligence – Challenges to the intellectual property rights framework: final report, Publications Office. <https://data.europa.eu/doi/10.2759/683128>

³⁸⁶ It is important to note that, even though this report was prepared by the European Commission, the report reflects the views of the authors. Detailed explanation can be found in the Legal Notice of the Report.

³⁸⁷ European Commission, Directorate-General for Communications Networks, Content and Technology, Hartmann, C., Allan, J., Hugenholtz, P. et al., (2020) Trends and developments in artificial intelligence – Challenges to the intellectual property rights framework: final report, p. 116.

³⁸⁸ Ibid, p. 116.

finalisation)”.³⁸⁹ It is highlighted that the execution phase is mainly conducted by AI, while the role of human authors is dominant in the conception and redaction phases often. A binary distinction is made at this stage in the report: AI-assisted outputs should be protected where human creativity is present, but AI-assisted outcomes will not be considered work if the AI-assisted output is created by an AI program which programmed to create content without conceived or redacted by a human by exercising creative choices.³⁹⁰ This evaluation applies to AI systems which have a black box nature³⁹¹, too, such as those created with non-deterministic algorithms.

The report suggests that the necessity of natural person and originality conditions are fulfilled with this system and does not conflict with the current legal rules, especially for the continental European countries.

Even though the EU prepare proposals and reports regarding the issue, there is no binding legislation that is issued by the EU yet. Moreover, as can be seen, there are several contradictions between reports prepared by the EU. Therefore, copyright eligibility of AI-generated or AI-assisted outputs and the applicable provisions is left to the interpretations of the courts.

Although the general approach of the EU regarding granting authorship of an AI-generated product is not possible due to the lack of originality, which refers to the author’s own intellectual creation and creative and free choice, the UK, which recently left the EU with Brexit, and Ireland adopted different interpretations and approaches. This situation also indicates that harmonization, one of the EU's most significant aims, has not been fully achieved.

6.2.2.2 The United Kingdom

The UK has added significant provisions covering computer-generated works to The UK Copyright, Design and Patent Act 1988 (“UK CDPA”).

According to Section 178 of The UK Copyright, Design and Patent Act 1988;

³⁸⁹ Ibid, p. 116.

³⁹⁰ Ibid, p. 116.

³⁹¹ Ibid, p. 116.

"'computer-generated', in relation to a work, means that the work is generated by computer in circumstances such that there is no human author of the work."

Using the phrase "...in circumstances such that there is no human author of the work" in this section where the computer-generated is defined is crucial because it is an indication that the UK CDPA accepts the creations produced by the computer programs as work where there is no natural person. However, the authorship is granted to a natural person who makes the necessary arrangement for the creation of the computer-generated work.

Section 9(3) of the UK CDPA 1988 regulates that:

"In the case of a literary, dramatic, musical or artistic work which is computer-generated, the author shall be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken."

This approach demonstrates the separation of creativity and authorship in the United Kingdom.³⁹² In such a work, creativity and originality belong to AI, but AI is not defined as the author. The natural person recognized as the author does not contribute any creative input to the work.³⁹³ This provision acknowledges the effort put into creating a program with the capability of producing works, and although the creative aspect may be undertaken by the computer program, it aims to issue an exception from the requirement of human authorship.³⁹⁴

In this sense, it has also been stated by the UK Intellectual Property Office that there is a need for clarification in terms of the provisions by the Consultation on Artificial Intelligence call for views: copyright and related rights dated 2021.³⁹⁵

³⁹² The UK Intellectual Property Office. (2021). Artificial intelligence call for views: copyright and related rights. Retrieved January 15, 2023, from <https://www.gov.uk/government/consultations/artificial-intelligence-and-intellectual-property-call-for-views/artificial-intelligence-call-for-views-copyright-and-related-rights>

³⁹³ Ibid.

³⁹⁴ Guadamuz, A. (2017, October). Artificial Intelligence and copyright. WIPO Magazine. Retrieved July 15, 2022, from https://www.wipo.int/wipo_magazine/en/2017/05/article_0003.html#:~:text=Artificial%20intelligence%20is%20already%20being,used%20and%20reused%20by%20anyone.

³⁹⁵ The UK Intellectual Property Office. (2021). Artificial Intelligence and Intellectual Property. Retrieved January 15, 2023, from <https://www.gov.uk/government/consultations/artificial-intelligence-and-intellectual-property-call-for-views/artificial-intelligence-call-for-views-copyright-and-related-rights>

According to the latest Consultation on Artificial Intelligence and Intellectual Property: Copyright and Patents, dated June 28, 2022, it is highlighted that in order for a product to benefit from copyright protection, it must be original, and that originality is indicated by concepts such as characteristic of personality, judgement and skill, that refers to a natural person.³⁹⁶ In this sense, it is also repeated that the provisions regarding computer-generated works in the UK CDPA are unclear and contradictory.³⁹⁷

Some countries followed the UK CDPA's granting copyright protection to computer-generated works approach, such as Ireland, New Zealand, India, South Africa, and Hong Kong, with very similar wording.³⁹⁸ However, uncertainty is stated in some of the decisions in these countries as well. In the case held in The Supreme Court of Appeal of South Africa in 2006, the term computer-generated work was evaluated, and Judge Streicher JA concluded that; *"In my view a work only qualifies as having been computer-generated if it was created by a computer in circumstances where there is no human author of the work. If there is a human author the work is computer assisted and not computer generated. That is the meaning ascribed to 'computer-generated' in s 178 of the Copyright, Designs and Patents Act, 1988 of the United Kingdom."*³⁹⁹

The necessary arrangement, on the other hand, has not been clarified in either UK CDPA or Irish Copyright and Related Acts either. In *Nova Productions v Mazooma Games Case*⁴⁰⁰, the UK Supreme Court briefly discussed the inputs of a program that generates an artistic work and stated that the player of a video game is not considered an author as the input is not artistic, does not contribute skill or labour, and does not undertake any necessary arrangements for creating the frame images; instead, they simply play the game.⁴⁰¹ Thus, the court did not consider merely playing the game as sufficient to constitute the necessary arrangements for creating a work. Furthermore, the scope and actions that would be considered necessary arrangements remain uncertain.

³⁹⁶ Ibid.

³⁹⁷ Ibid.

³⁹⁸ Gaon, A. H. (2021). *The Future of Copyright in the Age of Artificial Intelligence*, p. 105.

³⁹⁹ *Haupt v. Brewer Marketing Intelligence (Pyt) Ltd* (2006) SCA 39 (RSA).

⁴⁰⁰ *Nova Productions v Mazooma Games*, [2007] EWCA Civ 219.

⁴⁰¹ Scannel, B. (2022). When Irish AIs are smiling: could Ireland's legislative approach be a model for resolving AI authorship for EU member states? *Journal of Intellectual Property Law & Practice*, 17(9), p 727-740. p. 738. Retrieved January 12, 2023, from <https://doi.org/10.1093/jiplp/jpac068>

The proposed model regarding determining the necessary arrangements and authorship in computer-generated works by Ginsburg and Budiardjo recognizes two potential creators, the AI designer (upstream actor) and the user who clicks the generate button (downstream actor).⁴⁰² It is suggested that if the AI system limits the options available to the user, it reduces their chances of being considered as the author of a computer-generated work. However, if the user is able to input creative choices in the AI-generated work, they may be considered as the author.⁴⁰³

In the UK CDPA, computer-generated works are regulated in such a way as to benefit from copyright protection, but the scope of the protection is limited compared to other types of works. The duration of copyright protection, which is regulated as 70 years for other works, is determined as 50 years from the end of the calendar year in which the work is done for the computer-generated works.⁴⁰⁴ Under Section 79 and Section 81, exceptions for the right to be identified as author or director and the right to object to derogatory treatment of work are presented, and it is stated that these rights will not be applied to computer-generated programs. Therefore, although computer-generated products are considered works in the UK, moral rights are excluded.

The UK has left the EU with Brexit and has become independent of EU treaties, regulations, directives, and other EU legislations. Even though the withdrawal of the UK from the EU affected the agreements' binding status that is signed by the EU and within the EU⁴⁰⁵, international agreements such as Berne Convention, the TRIPS Agreement, and WIPO Internet Treaties continue to be valid and binding agreements in the UK⁴⁰⁶ since the UK itself signed them. Therefore, it should be noted that the UK needs to comply with the international agreements to which the UK is a party while enacting laws in its domestic law.

⁴⁰² Ibid.

⁴⁰³ Ibid.

⁴⁰⁴ The UK Copyright, Design and Patent Act 1988, s.12(7).

⁴⁰⁵ Arsava, A. F. (2021). Brexit'in AB'nin Taraf Olduğu Uluslararası Hukuk Anlaşmaları Üzerinde Doğuracağı Etkiler. TAAD, 12(47).

⁴⁰⁶ Protecting your copyright abroad. (2022, July 1). Retrieved July 15, 2022, from <https://www.gov.uk/government/publications/protecting-your-uk-intellectual-property-abroad/protecting-your-copyright-abroad>

6.2.2.3 Ireland

Ireland, a member of the EU, has included a provision regarding granting copyright protection over computer-generated works in its domestic law. According to Chapter 2, Article 21/f of Irish Copyright and Related Acts, 2000:

“21. - In this Act, “author” means the person who creates a work and includes:

(f) in the case of a work which is computer-generated, the person by whom the arrangements necessary for the creation of the work are undertaken.”

This provision is similar to the UK CDPA’s authorship approach. Conducting the necessary arrangement, even though it is not defined in the Act, is considered sufficient for granting authorship to a person in a computer-generated work.⁴⁰⁷

The authorship of computer-generated works is structured in the same manner as the provisions regarding the authorship of computer-generated works in the UK CDPA. Therefore, the discussions regarding the UK law presented above will also be applicable to Irish Law. However, the term of protection for computer-generated works is regulated as “...70 years after the date on which the work is first lawfully made available to the public”, according to Art. 70 of the Irish Copyright and Related Acts.

It seems that Ireland did not interpret the granting the authorship over computer-generated works as contrary to the EU legislations and international agreements and has enacted this regulation in its domestic law despite the ECJ’s decisions defining originality as the author’s intellectual creation and reflection of the author’s personal touch.

The absence of protection for computer-generated products was endeavored to provide by expanding the copyright for these works.⁴⁰⁸ However, the full implications of expanding copyright to embrace computer-generated works were not fully understood at that time. Therefore, although the UK and Ireland copyright laws have extended

⁴⁰⁷ Lambert, P., (2017, July 8). Computer Generated Works and Copyright: Selfies, Traps, Robots, AI and Machine Learning, European Intellectual Property Review. July 15, 2022, from <https://doi.org/10.31228/osf.io/np2jd> p. 3.

⁴⁰⁸ Ibid, p. 4.

protection to computer-generated works, it may not be possible to protect every computer-generated work under the current developments.⁴⁰⁹

Therefore, the UK's and Ireland's amendments are criticized due to the incompliance with the union *acquis* on the ground that this system cannot satisfy the author's own intellectual creation condition sought by the ECJ.⁴¹⁰ On the other hand, while acknowledging the validity of criticisms, it is suggested that qualifying these provisions as a species of related rights would make them compatible with the EU *acquis*.⁴¹¹

In addition to criticisms, even though Ireland regulated that computer-generated works benefit from copyright protection, general expressions are used in the Irish Copyright and Related Rights Act. The provision that regulates the granting of copyright protection of AI-generated products did not clarify either the effect or scope of human involvement or necessary arrangements. Therefore, there is a need for a wider reinterpretation of the protection of computer-generated products considering new technology-based efforts.⁴¹²

6.2.3 Landmark Cases from Other Countries

Even though this thesis deals with copyright protection over AI-generated products in terms of Turkish and EU laws, I believe that including other countries' approaches to this highly disputed issue would be beneficial. For this reason, there is a brief evaluation of landmark cases regarding copyright protection over AI-generated products in four countries: the USA, India, Canada, and China.

6.2.3.1 The United States of America

The US adopts the copyright system, which has distinguishing aspects in several points from *droit d'auteur* system.⁴¹³ Although the fundamental approach is granting the

⁴⁰⁹ Ibid, p. 11.

⁴¹⁰ Scannel, B. (2022). When Irish AIs are smiling: could Ireland's legislative approach be a model for resolving AI authorship for EU member states? p. 735.

⁴¹¹ European Commission, Directorate-General for Communications Networks, Content and Technology, Hartmann, C., Allan, J., Hugenholtz, P. et al., (2020) Trends and developments in artificial intelligence – Challenges to the intellectual property rights framework: final report, p. 117.

⁴¹² Lambert, P., (2017, July 8). Computer Generated Works and Copyright: Selfies, Traps, Robots, AI and Machine Learning, European Intellectual Property Review. July 15, 2022, from <https://doi.org/10.31228/osf.io/np2jd> p. 11.

⁴¹³ Okutan Nilsson, G. (2008). Türk Fikir ve Sanat Eserleri Hukukunda Tüzel Kişinin Eser Sahipliği Sorunu, p. 480.

authorship to the creator of the work, there are more exceptions introduced to the main rule in this system.⁴¹⁴

The US is not a contracting party to the Berne Convention, so the prohibition of registration procedures regulated in the Berne Convention is not applicable in the US. In the US, while registering a work is not required, registry is necessary to be able to legally enforce the exclusive rights of copyright through litigation.⁴¹⁵

Two exceptions, which are referred to as the work made for hire doctrine, have been provided to the fundamental rule that the individuals who create the work are the authors of the work.⁴¹⁶ The first exception allows the employer to be considered the author of the work created by the employee during the course of their employment. The second exception applies to works created on commission or order. If a work falls within one of the categories of works listed in the law and is specifically ordered or commissioned, the party who commissions the work will be the author of the rights to the work unless parties agree otherwise in a written contract signed by them according to the US Copyright Act. §201-(b). Apart from work made for hire doctrine exceptions, the US law does not allow non-human beings to be authors. The US Copyright Office register only original works of authorship if the work was created by a human.⁴¹⁷ This rule, the necessity for a human creator, has been stated through different cases.

One of the most notable cases regarding whether non-human beings can enjoy copyright protection is the Slater v Naruto Case, known as Monkey Selfies. In the lawsuit where the copyright of the selfies taken by a macaque monkey named Naruto using the camera of photographer David Slater was disputed after David Slater published and sold a book containing selfies taken by Naruto. After that, People for the Ethical Treatment of Animals (“PETA”) sued David Slater on behalf of Naruto, alleging copyright infringement. The 9th Circuit Court of Appeal concluded that “*this monkey – and all*

⁴¹⁴ Ibid.

⁴¹⁵ The US Copyright Office. (n.d.). What is Copyright? Retrieved July 15, 2022, from <https://www.copyright.gov/what-is-copyright/>

⁴¹⁶ Okutan Nilsson, G. (2008). Türk Fikir ve Sanat Eserleri Hukukunda Tüzel Kişinin Eser Sahipliği Sorunu, p. 480.

⁴¹⁷ Copyrightable Authorship: What Can Be Registered. (2021) Compendium of U.S. Copyright Office Practices, 300(4). Third Edition. Retrieved January 15, 2023, from <https://www.copyright.gov/comp3/chap300/ch300-copyrightable-authorship.pdf>

animals, since they are not human- lacks statutory standing under the Copyright Act.”⁴¹⁸

Although PETA, and Naruto, lost the case in the courthouse, this case started new discussions regarding the copyright protection of AI-generated products.

In another case, Stephen Thaler repeatedly applied to the US Copyright Office for the registration of a work created by an AI program called Device for Autonomous Bootstrapping of Unified Sentience (“DABUS”)⁴¹⁹, but the Copyright Office rejected the application due to the “*lack of human authorship necessary to support a copyright claim.*” The US Copyright Office also stated that it has decided against granting copyright protection to non-human beings in cases brought before courts at several levels, including the Monkey Selfies case.⁴²⁰

6.2.3.2 India and Canada

RAGHAV, AI Painting App, owned by an IP lawyer named Ankit Sahni in India, has created a painting called Suryast, inspired by Van Gogh’s popular painting Starry Night. Thereupon, Mr. Sahni, the author of the RAGHAV, applied to the Indian Copyright Office requesting that RAGHAV to be registered as the author of the Suryast. Upon rejection of the application by the Indian Copyright Office, Mr. Sahni applied again. In the second application, Mr. Sahni applied for registration of himself and RAGHAV as co-authors, and Indian Copyright Office accepted this application and recognized RAGHAV as a co-author.⁴²¹ Thus, RAGHAV became the first AI program that obtain the title of co-author in India.

Later, Mr. Sahni applied to Canada Copyright Office for the same painting’s authorship registration, and Canada Copyright Office also gave the co-authorship to the RAGHAV

⁴¹⁸ Naruto v. Slater No. 16-15469. (2017, July 12).

⁴¹⁹ Paranjape, I. K., & Sharma, S., (2022, March 24). The Raghav Issue: Should AI Be Granted Authorship Rights? American University Intellectual Property Brief. Retrieved from <http://www.ipbrief.net/2022/03/24/the-raghav-issue-should-ai-be-granted-authorship-rights/>

⁴²⁰ Holt, K., (2022, February 21). You can’t copyright AI-created art, according to US officials. Engadget. Retrieved December 22, 2022, from <https://www.engadget.com/us-copyright-office-art-ai-creativity-machine-190722809.html?guccounter=1>

⁴²¹ Munjal, N., (2021, September 20). Is it a Picasso? A Rembrandt? No, it’s Artificial Intelligence. IP Osgoode. Retrieved December 22, 2022, from <https://www.iposgoode.ca/2021/09/is-it-a-picasso-a-rembrandt-no-its-artificial-intelligence/>

and Mr. Sahni. Similar to India, Canada issued co-authorship to an AI program for the first time in its history.⁴²²

The Indian Copyright Act does not define the authorship and does not regulate a requirement for a natural person for the authorship of a work. Additionally, computer-generated works are also protected under the Indian Copyright Act Section 2-d(vi), and the author of the computer-generated work is defined as "*...the person who causes the work to be created.*".

Similarly, The Canadian Copyright Act does not clearly define the author or natural person's existence for the authorship. However, it is accepted that the author must be a natural person who uses their skill and creativity to create the work by referring to the term of protection, which is linked to the life or death of the author.⁴²³

In the Suryast Case, the Indian Copyright Office's rejection of AI's application to be a sole author but accepting the application to be a co-author with a natural person may be interpreted that a natural person's existence is required to meet the condition for copyright protection. However, the practicality of the registration of a natural person and AI as co-authors has question marks because all the rights will be enjoyed by Mr. Sahni since RAGHAV is not capable of executing the rights arising from copyright.

6.2.3.3 China

The first case by Chinese courts to grant authorship over AI-generated products was heard in 2019 with the Shenzhen Tencent v Shanghai Yingxun Case⁴²⁴.

The AI program, Dreamwriter, is an intelligent writing assistance system created by the Shenzhen Tencent Computer System Company Limited. After Tencent publishing of a financial report article created by Dreamwriter, Shanghai Yingxun Technology Company republished the article without the permission of Tencent. Thereupon, Tencent filed a

⁴²² Medeiros, M., Yi, D., & Chalmers, W. (2022, March). Copyright protection for AI-created work? Norton Rose Fulbright. Retrieved December 22, 2022, from <https://www.nortonrosefulbright.com/en/knowledge/publications/68947aaf/copyright-protection-for-ai-created-work>

⁴²³ A Consultation on a Modern Copyright Framework for Artificial Intelligence and the Internet of Things. (2021). P.12 Retrieved January 15, 2023, from <https://www.ic.gc.ca/eic/site/693.nsf/eng/00316.html>

⁴²⁴ Wan, Y. & Lu, H. (2021). Copyright protection for AI-generated outputs: The experience from China. Computer Law & Security Review, 42. <https://doi.org/10.1016/j.clsr.2021.105581>

case against Shanghai Yingxun Technology Company on the grounds copyright infringement and unfair competition.⁴²⁵ Shanghai Yingxun Technology Company claimed that the article was not copyrightable due to the lack of originality since there was no human creativity. However, the court ruled that the developer had demonstrated originality in their choices regarding the criteria for selection and arrangement of the existing data, which the AI subsequently employed in completing the final selection and arrangement.⁴²⁶

As a result of the lawsuit, the Shenzhen Nanshan District People's Court ruled that the work of Dreamwriter, a financial report in the case, should be protected.⁴²⁷ Granting copyright protection over an AI-generated product by the Nanshan Court makes China one of the most prominent countries regarding AI-generated products' copyright protection.⁴²⁸ However, the Court also stated that accepting Dreamwriter as the sole author of all the process would be unfair since the automatic operation of Dreamwriter was determined by the people of Tencent.⁴²⁹ For this reason, the Court decided that copyright protection over AI-generated articles is enjoyed by the user of the Dreamwriter, Tencent.⁴³⁰ This is a landmark decision in terms of giving the authorship to the AI program and the rights arising from copyright to the creator of the AI. However, as in the RAGHAV case, the effect of this decision is not certain, especially regarding moral rights.

In conclusion, countries have adopted different views on whether AI-generated products are subject to copyright protection. The US courts and Copyright Office clearly express that presence of a natural person for copyright protection is a requirement, and authorship cannot be established for AI or animals. The Copyright Offices of India and Canada have

⁴²⁵ Bo, Z. (2019). Artificial Intelligence and Copyright Protection - Judicial Practice in Chinese Courts. Retrieved December 22, 2022, from https://www.wipo.int/export/sites/www/about-ip/en/artificial_intelligence/conversation_ip_ai/pdf/ms_china_1_en.pdf

⁴²⁶ Matulionyte, R. & Lee, J. (2022). Copyright in AI-generated works: Lessons from recent developments in patent law. 19(1). SCRIPTed 5. Retrieved January 15, 2023, from <https://script-ed.org/?p=4036> DOI: 10.2966/scrip.190122.5

⁴²⁷ Sun, H. (2022). Redesigning Copyright Protection in the Era of Artificial Intelligence. Iowa Law Review. 107(1213).

⁴²⁸ Xuan, S. (n.d.). Intellectual Property Protection for AI Creations in China. Copyright MMLC Group. Retrieved December 22, 2022, from <https://www.hg.org/legal-articles/intellectual-property-protection-for-ai-creations-in-china-56196>

⁴²⁹ Bo, Z. (2019). Artificial Intelligence and Copyright Protection - Judicial Practice in Chinese Courts. Retrieved December 22, 2022, from https://www.wipo.int/export/sites/www/about-ip/en/artificial_intelligence/conversation_ip_ai/pdf/ms_china_1_en.pdf

⁴³⁰ Ibid.

accepted the co-authorship of an AI and a natural person for AI-generated work. China, on the other hand, by establishing copyright protection for AI-generated work, has become one of the leading countries in this field.

Regarding Turkish Law, both the Court of Cassation and the doctrine in Turkish law agree that it is mandatory for the intellectual product to have been created by a natural person for copyright protection. Therefore, even though there is no case that has yet come before the courts, an AI-generated product cannot be given copyright protection due to the lack of the characteristics of the author condition, and AI cannot be recognized as the author on the ground that this condition can only be fulfilled by a natural person in Turkish Law.

The situation in the European Union is somewhat more complex. Some Member States seek the presence of a natural person in their domestic laws, while some do not include the term natural person. The ECJ has explained the originality criterion in its decisions with concepts such as the author's own intellectual creation, personal touch, and free and creative choice, which are evaluated in relation to the natural person. In Irish law, on the other hand, originality and authorship are separated. The existence of copyright protection on computer-generated work is accepted, and the natural person who makes the necessary arrangements is considered the author. However, this situation has received criticism for being against the EU *acquis*. Even if the authorship is given to a natural person in the UK and Irish Laws, for the originality condition to be fulfilled, the work should bear the intellectual creation of the author. Indeed, separating originality and authorship and granting an AI-generated product that lack of a natural person's creativity is incompatible with the EU *acquis*.

7 APPROACHES TO LEGAL PROTECTION OF AI-GENERATED PRODUCTS

Upon evaluation from the perspective of Turkish and EU law, it can be observed that current legal rules are applicable for AI programs as a sub-branch of computer programs and AI-assisted works where AI is used as a mere tool, and no problems are encountered for the eligibility of these products in terms of copyright. However, the requirement for the existence of a natural person, the originality condition, and the relationship between the work and its creator are among the issues that raise discussion for AI-generated products.

In the current copyright legislation, the conditions for copyright protection and the rights of the author are regulated according to the 20th century's understanding. Although these regulations contain sufficient and explicit provisions regarding works created by natural persons, uncertainty arises regarding AI-generated products. On the other hand, it is a fact that the developing field of AI is making creations in many areas, and these must be legally established on a solid foundation. Therefore, issues such as whether AI-generated products are eligible for protection and, if so, what conditions are necessary are being carefully examined by legal experts, and certain recommendations are being offered. This chapter evaluates recommendations regarding copyright protection of AI-generated products from three approaches: Romantic School, Reformist School, and Modern School. Afterwards, the author's evaluation is also presented.

7.1 Romantic School

Scholars in the Romantic School suggest the idea that all creations are not worthy of copyright protection and concur with the idea that AI-generated products should not be protected and should be considered the public domain.⁴³¹ According to the supporters of this approach, what should be protected as a work are the results that are valuable for society and that are produced as a result of a natural person's intellectual activity.⁴³² Therefore, the necessity of a natural person who created the work is sought as a requirement. Scholars in this school assert that AI-generated products cannot be

⁴³¹ Yılmaztekin, H. K. (2021). *Yapay Zekanın Eser Sahipliği*, p. 218.

⁴³² Hirsch, E. E. (1943). *Hukuki Bakımdan Fikri Say*, p. 12; Güneş, İ. (2022). *Uygulamada Fikir ve Sanat Eserleri Kanunu*, p. 63.

considered as work since computers cannot produce original works.⁴³³ According to them, AI-generated products shall be treated as natural events or things created by animals.⁴³⁴

In EU laws and ECJ decisions, the crucial element of being considered as work is expressed through concepts such as originality, the author's own intellectual work, personal touch, and free and creative choice.⁴³⁵ Since these concepts are not present in AI-generated products, they cannot benefit from copyright protection. If there is no human intervention in creation, there is also no copyright protection, and such a creation becomes a public domain.⁴³⁶

According to Turkish law, as previously evaluated, the fundamental rule that the author is the natural person who creates the work is applied without exception. Accordingly, since the AI-generated products do not meet the criteria of a natural person, it is not possible to consider them as work under current legal rules, and they will be considered public domain. Similarly, in US law, the main rule is the same, although there are two exceptions presented under the work made for hire doctrine. Accordingly, if an AI-generated product cannot be directly attributable to a natural person, this creation theoretically not be copyrightable and would consider public domain.⁴³⁷ In *Naruto Case*, it has been established that non-humans cannot be considered as authors. In this respect, it would not be incorrect to assert that both the existing legal regulations and scholars' approaches fall within the concept of the Romantic School in Turkish, the US, and most of the EU Member States' domestic laws.

Regarding the effects of this approach, establishing no protection over AI-generated products may cause several problems. The biggest possible problem is that no protection over AI-generated products causes regression of technological developments and investments in this area and related sectors.⁴³⁸ AI-generated products emerge as a result

⁴³³ Gök, B. (2022). *Yapay Zeka Sistemleri Tarafından Üretilen Fikri Ürünlerin Telif Hakkı*, p. 93

⁴³⁴ Ibid.

⁴³⁵ Detailed information can be found in Chapter 4.2 and 4.3.1.

⁴³⁶ Kop, M. (2019). AI and Intellectual Property: Towards an Articulated Public Domain. *University of Texas School of Law, Texas Intellectual Property Law Journal (TIPLJ)*, Vol. 28, No. 1. Retrieved January 15, 2023, from DOI:10.2139/ssrn.3409715

⁴³⁷ Hristov, K. (2017). *Artificial Intelligence and the Copyright Dilemma*, p. 437.

⁴³⁸ Ibid, p. 438.

of such strenuous procedures that require scientists' serious effort and experience. These creations become open sources that can be used by anyone if they are not given any protection. This lack of legal security triggers both losing emotional satisfaction and a loss of economic income. It hinders progress because one of the fundamental reasons for investors and scientists to keep working on these studies is trusting that their efforts or investments will be rewarded.

From the perspective of states, no copyright protection for AI-generated products leads scientists and investors to other states where their efforts are rewarded. Establishing such protection may create the advantage of being the center of technological development and innovation, especially for European countries, which are far behind Asia and the US in terms of being a technological base.

7.2 Reformist School

The Reformist school argues that AI-generated products that meet certain criteria should be protected, and their proposals advocate for AI itself to be recognized as the author.⁴³⁹ The main suggestion of the supporters of the Reformist School is the idea of recognizing a personality/status to AI. One of the most popular examples of establishing legal personhood to a machine may be remembered from Saudi Arabia's declaration that the humanoid robot Sophia created by Hanson Robotics, was granted official citizenship status in 2017.⁴⁴⁰ Discussions about granting personhood to non-human beings date back to the Middle Ages when the churches had legal rights and animals were held responsible for their criminal actions.⁴⁴¹ However, similarities between AI and human intelligence are far more prominent than animal intelligence.⁴⁴² As discussed in Chapter 5.1.1, there are even some features that artificial intelligence is considered superior to biological intelligence.

These similarities and superiority of AI in terms of certain aspects pave the way for discussions of legal personhood for AI. Nevertheless, scholars supporting this school

⁴³⁹ Gök, B. (2022). *Yapay Zeka Sistemleri Tarafından Üretilen Fikri Ürünlerin Telif Hakkı*, p. 94.

⁴⁴⁰ Fernandes, J. V. (2022). Robot citizenship and gender (in)equality: the case of Sophia the robot in Saudi Arabia. Retrieved January 15, 2023, from https://repositorio.ual.pt/bitstream/11144/5333/3/EN_Thematic%20Dossier_Middle%20East_art04.pdf

⁴⁴¹ Gaon, A. H. (2021). *The Future of Copyright in the Age of Artificial Intelligence*, p. 36.

⁴⁴² Ibid.

have different approaches regarding the establishment of the personality model and its scope. There are four proposals presented for giving AI a personality: electronic personality status, legal entity status, natural person status, and slavery status.

7.2.1 Electronic Personality Status

Granting electronic personality to AI is an approach that rejects the classification of AI as mere objects due to their ability to make independent decisions and take actions but acknowledges that they have not yet reached a level of development to be granted the legal status of human beings.⁴⁴³ It is considered that creating a new legal status for some autonomous machines is possible with a certain scope of action and decision-making.⁴⁴⁴

In the European Parliament Legal Affairs Committee's report dated 2017⁴⁴⁵, an electronic personality assessment was made for autonomous robots.⁴⁴⁶ In the Report, the European Parliament calls on the Commission to explore, analyze and consider all the possible legal proposals, including granting specific legal statutes such as electronic personality. In this regard, the European Parliament suggested that having an electronic personality may help sophisticated autonomous robots to be responsible for their possible damages.⁴⁴⁷ The model suggests that entering robots into a register system and establishing a fund to compensate for the possible damages caused to third parties by AI.⁴⁴⁸

However, European experts approached the idea of creating an electronic personality for autonomous robots in a skeptical way.⁴⁴⁹ The proposal was rejected immediately and

⁴⁴³ Gök, B. (2022). Yapay Zeka Sistemleri Tarafından Üretilen Fikri Ürünlerin Telif Hakkı, p. 97.

⁴⁴⁴ Suggestion for a green paper on legal issues in robotics, (2012). euRobotics The European Robotics Coordination, p. 61

⁴⁴⁵ European Parliament Committee on Legal Affairs, (2017). Motion for a European Parliament Resolution with Recommendations to the Commission on Civil Law Rules on Robotics. Retrieved December 13, 2022, from https://www.europarl.europa.eu/doceo/document/A-8-2017-0005_EN.html

⁴⁴⁶ Çetin, S. (2019). Yapay Zekâ ve Hukuk ile ilgili Güncel Tartışmalar. Yapay Zeka Çağında Hukuk, İstanbul, Ankara ve İzmir Baroları Çalıştay Raporu, p. 55.

⁴⁴⁷ "59. Calls on the Commission, when carrying out an impact assessment of its future legislative instrument, to explore, analyse and consider the implications of all possible legal solutions, such as: f) creating a specific legal status for robots in the long run, so that at least the most sophisticated autonomous robots could be established as having the status of electronic persons responsible for making good any damage they may cause, and possibly applying electronic personality to cases where robots make autonomous decisions or otherwise interact with third parties independently"

⁴⁴⁸ Çetin, S. (2019). Yapay Zekâ ve Hukuk ile ilgili Güncel Tartışmalar. Yapay Zeka Çağında Hukuk, İstanbul, Ankara ve İzmir Baroları Çalıştay Raporu, p. 55

⁴⁴⁹ Ziemianin, K. (2021). Civil legal personality of AI. Future or utopia? Internet Policy Review, 10(2). Retrieved July 15, 2022, from <https://doi.org/10.14763/2021.2.1544>

determinately by several academics.⁴⁵⁰ Moreover, a group of experts, including AI and Robotics, legal, medical, and ethics experts, and industry leaders, have published an open letter expressing their opinion about establishing electronic personality in AI.⁴⁵¹ According to the letter, experts evaluated that as an inappropriate suggestion for the present time and expressed their concerns about the potential negative consequences of the EU's report.

In discussions of granting electronic personality to robots, it is often acknowledged that the reason to consider granting electronic personality is that the current legal frameworks may not be able to effectively address and regulate autonomous, intelligent robots.⁴⁵² This approach is criticized for various reasons such as false determination of the autonomy in the robots,⁴⁵³ execution of the liability issues⁴⁵⁴, ambiguity regarding determining when electronic personhood begins and which types of AI will be given electronic personality⁴⁵⁵.

7.2.2 Legal Entity Status

Establishing a legal personality for AI is also among the ideas put forward, and in the legal sense, there is no barrier to granting a legal personality to AI.⁴⁵⁶

In Turkish Civil Code Article 47, legal entities, defined as “*Group of persons organized to create a single body and independent property groups constructed for special object, are defined as legal entity as per the provisions contrasting its qualities, relations etc.*” and in the following article legal entities are designed as the capable of undertake rights and obligations other than the characteristic related to natural persons: “*The legal entities*

⁴⁵⁰ Renda, A. (2020). Europe: Toward a Policy Framework for Trustworthy AI. In Dubbet, M. D., Pasquale, F., & Das, S. (Eds.), *The Oxford Handbook of Ethics Of AI*. Oxford: Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780190067397.001.0001> p. 651.

⁴⁵¹ Open Letter to the European Commission Artificial Intelligence and Robotics. Retrieved April 9, 2023, from <http://www.robotics-openletter.eu/>

⁴⁵² Avila Negri, S.M.C. (2021) Robot as Legal Person: Electronic Personhood in Robotics and Artificial Intelligence. *Front. Robot. AI* 8:789327. doi: 10.3389/frobt.2021.789327

⁴⁵³ Ibid.

⁴⁵⁴ Open Letter to the European Commission Artificial Intelligence and Robotics. Retrieved April 9, 2023, from <http://www.robotics-openletter.eu/>

⁴⁵⁵ Kaynak Balta, B. (2021). Eser Kavramı ve Yapay Zeka Ürünleri, p.103-104.

⁴⁵⁶ Dremluiga, R., Kuznetsov, P., & Mamychev, A. (2019). Criteria for Recognition of AI as a Legal Person. *Journal of Politics and Law*, 12(3). Retrieved January 15, 2023, from <https://doi.org/10.5539/jpl.v12n3p105>

are entitled to use all the rights vested upon and the capacity to undertake all kinds of obligations other than the characteristics related to real persons such as sex, age, kinship etc.”.

Similarly, supporters of this idea suggest that it is possible to establish a structure for AI that is capable of having rights and obligations, similar to corporations⁴⁵⁷, by ensuring that certain characteristics specific to human beings are excluded. It is emphasized that robots have a decision mechanism; therefore, they can even be registered in an official registry, and by assigning an asset to themselves, the losses can be covered by this asset.⁴⁵⁸

The European Commission explained its statement regarding granting legal personality to AI in 2019, and the EU resolution is criticized for several reasons, such as granting a legal personality to AI is not beneficial because there is no concept of liability provisions and also because the people who created and control it should be held responsible for AI's actions.⁴⁵⁹ On the other hand, with the EU resolution dated 2020 Civil Liability Regime for Artificial Intelligence, the idea of granting AI any special status has been abandoned, and this controversial subject has begun to be approached in a modular manner.⁴⁶⁰ The resolution notes that giving legal personality to AI technologies is not appropriate and would negatively impact incentives for human creators.

7.2.3 Natural Person Status

Another suggestion regarding granting personality to AI is considering them as human beings. Supporters of this viewpoint suggest that the concept of humanity should be expanded to include AI by highlighting AI's features that are similar to humans.⁴⁶¹ However, the idea of evaluating AI as a human has been criticized for lacking some of

⁴⁵⁷ Perennou, T. (2014). State of the art on legal issues, p. 11. Retrieved April 8, 2023, from <https://ethicaa.greyc.fr/media/files/ethicaa.delivrable.1.pdf>

⁴⁵⁸ Çetin, S. (2019). Yapay Zekâ ve Hukuk ile ilgili Güncel Tartışmalar. Yapay Zeka Çağında Hukuk, İstanbul, Ankara ve İzmir Baroları Çalıştay Raporu, p.56.

⁴⁵⁹ Ziemianin, K. (2021). Civil legal personality of AI. Future or utopia? Internet Policy Review, 10(2). Retrieved July 15, 2022, from <https://doi.org/10.14763/2021.2.1544>

⁴⁶⁰ Simonart, V. (2022). Artificial Intelligence and Legal Personality. Insight. Retrieved January 15, 2023, from <https://liedekerke.com/en/insights/artificial-intelligence-and-legal-personality>

⁴⁶¹ Yılmaztekin, H. K. (2021). Yapay Zekanın Eser Sahipliği, p. 226.

the fundamental aspects that are specific to humans, such as consciousness, feelings, interests, and creativity.⁴⁶²

While the human-like aspects of AI may be prominent today, there are also fundamental differences between biological and artificial intelligence, as explained in Chapter 5.1.1. For AI to be treated similarly to biological intelligence, it would need to exhibit similar features in terms of consciousness, emotions, and creativity, which is considered unrealistic by most experts, given the current state of AI research.

Robots, indeed, do not possess the autonomy, rationality, and social relationships that are necessary for granting personality.⁴⁶³ These criticisms are often met with counterarguments from those who advocate for granting natural person status to AI, pointing out that some individuals, such as mentally ill people or children, may not possess all of these criteria but still fulfil the natural person condition necessary for copyright protection. However, being human is a natural situation and granting it to machines should be approached differently than this natural process.⁴⁶⁴ This suggestion also has been criticized due to the possible high social costs.⁴⁶⁵ Consequently, this proposition has remained at a level significantly distant from gaining acceptance and has remained as a theoretical consideration.⁴⁶⁶

7.2.4 Slavery Status

One of the proposed statuses for AI is the status of slavery, which derives its roots from John Locke's theory of property and aims to limit the authority and scope of action of AI, keeping it as an object in the eyes of humans.⁴⁶⁷ In Roman Law, slaves did not possess the legal capacity to conduct legal transactions on their own behalf, nor did they have any

⁴⁶² Dremluiga, R., Kuznetcov, P., & Mamychev, A. (2019). Criteria for Recognition of AI as a Legal Person. *Journal of Politics and Law*, 12(3). Retrieved January 15, 2023, from <https://doi.org/10.5539/jpl.v12n3p105>

⁴⁶³ Yılmaztekin, H. K. (2021). *Yapay Zekanın Eser Sahipliği*, p. 226.

⁴⁶⁴ Dremluiga, R., Kuznetcov, P., & Mamychev, A. (2019). Criteria for Recognition of AI as a Legal Person. *Journal of Politics and Law*, 12(3). Retrieved January 15, 2023, from <https://doi.org/10.5539/jpl.v12n3p105>

⁴⁶⁵ Yılmaztekin, H. K. (2021). *Yapay Zekanın Eser Sahipliği*, p. 229.

⁴⁶⁶ Kaynak Balta, B. (2021). *Fikir ve Sanat Eserleri Kanunu Kapsamında Eser Kavramı ve Yapay Zeka Ürünleri*, p. 84.

⁴⁶⁷ *Ibid*, p. 86.

rights or obligations.⁴⁶⁸ However, they did have the authority to act on behalf of their owners.⁴⁶⁹

In this regard, it is necessary to designate a natural person as the owner of AI in order to apply the slavery model to AI. Although no clear proposal has been developed as to who this person should be, the idea of the user being the owner has been considered. In essence, the Reformist School argues that the AI itself should be the author of a work, and thus, the approach of considering the author of AI-generated work as the author of the AI instead of the AI itself does not align with this school's main approach.⁴⁷⁰ Nevertheless, the establishment of limited legal capacities is considered to be functional.⁴⁷¹

From another viewpoint, the proposal for a slavery system has faced ethical criticism, as it recalls the dark history of slavery.⁴⁷² Indeed, experts should consider the ethical aspects of the prospect regulations while designing a new system for AI to avoid the bigger possible negative outcomes. The suggestions should be more progressive instead of recalling the shame of human history.

7.3 Modern School

Modern School is embodied in a harmonized structure that incorporates aspects from both Romantic and Reformist Schools. The scholars in this school assert that authorship should only be granted to natural persons.⁴⁷³ On the other hand, they support the idea that AI-generated works should be protected.⁴⁷⁴

The distinguishing aspect of the Modern School is the approach that AI-generated products should be protected, but the authorship and the rights arising from authorship should be attributed to a natural person. The issue debated by these scholars in this regard

⁴⁶⁸ Perennou, T. (2014). State of the art on legal issues, p. 13. Retrieved April 8, 2023, from <https://ethicaa.greyc.fr/media/files/ethicaa.delivvable.1.pdf>

⁴⁶⁹ Ibid.

⁴⁷⁰ Gök, B. (2022). Yapay Zeka Sistemleri Tarafından Üretilen Fikri Ürünlerin Telif Hakkı, p. 96.

⁴⁷¹ Ibid, p. 96.

⁴⁷² Yılmaztekin, H. K. (2021). Yapay Zekanın Eser Sahipliği, p. 227.

⁴⁷³ Ibid, p. 232.

⁴⁷⁴ Gök, B. (2022). Yapay Zeka Sistemleri Tarafından Üretilen Fikri Ürünlerin Telif Hakkı, p. 101.

pertains to the identity of the author. Drawing from different approaches to this topic, this section will be examined under three subheadings.

7.3.1 Separating Originality and Authorship

The UK⁴⁷⁵ and Ireland⁴⁷⁶ have deviated from established EU practices and regulated the protection of computer-generated works in their domestic laws, stipulating that the author should be the person who makes the necessary arrangements in computer-generated works where there is no human author. This approach is based on the separation of authorship and creative activity from each other.⁴⁷⁷

Separating authorship and creativity is suggested as a pragmatic and applicable approach due to the potential serious commercial impacts of excluding computer-generated works.⁴⁷⁸ However, as explained in Chapter 6.2.2.2 and Chapter 6.2.2.3, this system has also been subject to several criticisms. One of them is the uncertainty in determining who conduct the necessary arrangement in a computer-generated work and the scope of the necessary arrangements. Indeed, it has not clarified whether the programmer or user makes the necessary arrangements in the aforementioned laws.

Moreover, the system has been criticized for ambiguities regarding whether the originality requirement will be sought in these works, the lack of a clear legal status for works jointly created by humans and artificial intelligence, and the difficulty in determining the extent to which AI produce works autonomously and independently of a natural person.⁴⁷⁹

More importantly, this system is developed based on the copyright model which is adopted by the common law traditions. However, originality and authorship are almost inseparable concepts in the continental law systems since the work is occurred as a result

⁴⁷⁵ Detailed information can be found in Chapter 6.2.2.2.

⁴⁷⁶ Detailed information can be found in Chapter 6.2.2.3.

⁴⁷⁷ The UK Intellectual Property Office. (2021). Artificial intelligence call for views: copyright and related rights. Retrieved January 15, 2023, from <https://www.gov.uk/government/consultations/artificial-intelligence-and-intellectual-property-call-for-views/artificial-intelligence-call-for-views-copyright-and-related-rights>

⁴⁷⁸ Yılmaztekin, H. K. (2021). Yapay Zekanın Eser Sahipliği, p. 233.

⁴⁷⁹ Ibid, p. 235.

of the author's original intellectual effort. Therefore, adopting this model in countries such as Türkiye and Member States of the EU may corrupt the whole copyright system.

7.3.2 Work Made for Hire Approach

A group of scholars under the Modern School suggest that establishing a new form of protection for AI-generated products is unnecessary since the work for made for hire doctrine can find an application area for the copyright protection of AI-generated products.⁴⁸⁰ The work made for hire doctrine refers to the copyright of a work created by an employee within his/her job duties and, in certain specified instances, belongs to the employer or the party that ordered the work.⁴⁸¹

Although this structure has been proposed as an alternative approach to copyright protection of AI-generated works, when Dr. Staler presented the registration request of an AI to the US Copyright Office, the Office conducted that this approach cannot be applicable to AI-generated products for two reasons: First, the concept of work for hire requires a legally binding contract between the parties involved, but a computer program does not have the capability to enter into such contract.⁴⁸² Indeed, since the work for hire doctrine is provided with a written agreement to be signed between the parties, it is uncertain how Thaler's Creative Machine or any other machine would be able to sign such an agreement. Secondly, the work for hire doctrine only applies to determining the authorship, not copyright eligibility for an intellectual creation.⁴⁸³

Aside from the US Copyright Office's statements, it is observed as the most sufficient solution by expanding the scope of work made for hire doctrine for AI-generated products by some scholars.⁴⁸⁴ In this circumstance, authorship may be transfer from the original

⁴⁸⁰ Gök, B. (2022). Yapay Zeka Sistemleri Tarafından Üretilen Fikri Ürünlerin Telif Hakkı, p. 104.

⁴⁸¹ Bikbaeva, D. (2020). Created to Create: Why AI-Created Works Should Be Copyrightable as Works Made for Hire. *Illinois Business Law Journal*, 25. Retrieved January 15, 2023, from <http://publish.illinois.edu/illinoisblj/files/2020/06/9-Diana-Bikbaeva-AI-Copyright.pdf>

⁴⁸² Newman, J. P. G. (n.d.). Art in the Age of Mechanical Creation: U.S. Copyright Office Denies Registration for Work Created by Artificial Intelligence. Retrieved January 15, 2023, from <https://s3.amazonaws.com/documents.lexology.com/6d83a305-1562-4089-b811-f00ebadcc431.pdf?AWSAccessKeyId=AKIAVYILUYJ754JTDY6T&Expires=1673859974&Signature=9QNSa5skdfiMDhJZvIOiC8iWsms%3D>

⁴⁸³ Ibid.

⁴⁸⁴ Hristov, K. (2017). Artificial Intelligence and the Copyright Dilemma. *IDEA - The Journal of the Franklin Pierce Center for Intellectual Property*, 57(3). P. 452.

creator (AI) to the programmer or owner of the device (similar to the employer or person who ordered a work).⁴⁸⁵

This principle holds similar in the FSEK and according to Article 18 of the FSEK, “...*The rights in work created by civil servants, employees and workers during the execution of their duties shall be exercised by the persons who employ or appoint them...*”. However, this provision is applied to economic rights. The employer can only exercise economic rights, as moral rights cannot be transferred, and the author of the work remains the person who created the work. Consequently, in legal systems that presuppose a strong connection between the author and the work, such as those in Türkiye and the EU, it is not possible to transfer authorship and moral rights specifically to another person or a legal entity. This situation appears to be an obstacle to the global applicability of the work made for hire doctrine.

Nevertheless, as a blended approach, it can be envisaged that similar to the provisions in the UK CDPA, moral rights can be excluded from the scope of protection for computer-generated works through a specific regulation.

7.3.3 Legal Regime Proposed under the European Parliament Resolution on Intellectual Property Rights for the Development of AI Technologies

The European Union is undertaking significant efforts to evaluate the intellectual property rights of products involving AI. In this context, the European Parliament Resolution on Intellectual Property Rights for the Development of Artificial Intelligence Technologies was prepared in 2020.⁴⁸⁶

The resolution discusses the Union's legal framework for intellectual property and its goal to promote innovation, creativity, and access to knowledge and information. It also mentions recent developments in AI and similar emerging technologies as a significant technological advance that generates opportunities and challenges. The resolution emphasizes the need for structural reform of the Union's industrial policy to allow it to be at the forefront of AI technologies while respecting cultural diversity and an effective IP system that is fit for the digital age. It also states that the Union is the appropriate level at

⁴⁸⁵ Ibid.

⁴⁸⁶ European Parliament resolution of 20 October 2020 on Intellectual property rights for the development of artificial intelligence technologies. (2020/2015(INI))

which to regulate AI technologies in order to avoid fragmentation of the single market and differing national provisions and guidelines.

It is acknowledged that the obstruction of the potential of AI can have negative economic, innovation-impeding, and technological outcomes, and it is emphasized that unnecessary legal barriers should be removed. The resolution highlights the need for comprehensive protection of AI-related technologies and productions but also stresses that regulations should not harm the interests of human creators or violate the EU's ethical principles.

In terms of AI-generated products, it has been stated that granting copyright protection to AI-generated products will not be possible due to the fact that a work created by AI may not meet the originality requirement in light of current legal regulations. However, AI-generated technical creations should be protected to encourage investments in improving legal security for businesses and citizens and inventors. In the same article, the principle of originality is evaluated as a concept linked to a natural person, and the intellectual creation condition addresses the author's personality, so it is concluded that the ownership of rights should be assigned to a natural or legal person that created the work lawfully if the protection is granted.⁴⁸⁷ This evaluation is significant because it elucidated the EU's approach regarding the debate over whether the condition of being a natural person is mandatory to enjoy authorship. The EU Parliament calls on the European Commission to support the adoption of uniform copyright provisions, which is an evidence-based and technologically neutral approach to common to be applicable for AI-generated works in the EU if it is concluded that AI-generated creations are eligible for copyright protection.

⁴⁸⁷ “15. Takes the view that technical creations generated by AI technology must be protected under the IPR legal framework in order to encourage investment in this form of creation and improve legal certainty for citizens, businesses and, since they are among the main users of AI technologies for the time being, inventors; considers that works autonomously produced by artificial agents and robots might not be eligible for copyright protection, in order to observe the principle of originality, which is linked to a natural person, and since the concept of ‘intellectual creation’ addresses the author’s personality; calls on the Commission to support a horizontal, evidence-based and technologically neutral approach to common, uniform copyright provisions applicable to AI-generated works in the Union, if it is considered that such works could be eligible for copyright protection; recommends that ownership of rights, if any, should only be assigned to natural or legal persons that created the work lawfully and only if authorisation has been granted by the copyright holder if copyright-protected material is being used, unless copyright exceptions or limitations apply; stresses the importance of facilitating access to data and data sharing, open standards and open source technology, while encouraging investment and boosting innovation;”

7.4 Author's Evaluations

Copyright is a double-edged system. On the one hand, it protects the rights of individuals and third parties by granting specific rights to the author. On the other hand, copyrights accelerate technological developments and intellectual advancements thanks to the legal certainty and protection over the work, as it is stated in the EU Resolution on Intellectual Property Rights for the Development of Artificial Intelligence Technologies. Consequently, copyright law regulations directly impact individuals' fundamental rights, the development of society, technological advancements, and innovations. For these reasons, it should be considered in detail when enacting a law on this topic. Adopting prohibitive methods by voicing the risks they may pose and fears that AI may surpass humanity will only lead the studies regarding AI to be carried under the counter and uncontrollably. For this reason, it is crucial not to ignore AI technologies and to be prepared for possible developments.

For copyright protection on AI-generated products, whether AI-generated products have copyright protection is currently one of the most controversial issues of copyright law. The harmonization movement, which started with the Berne Convention and continued with many other supranational agreements, was interrupted by the emergence of disputes regarding AI, and no consensus has been reached yet.

States such as Canada, China, India, the UK, and Ireland consider it necessary to establish copyright protection on AI-generated (or computer-generated) products and have acted in this direction. On the other hand, in countries such as Türkiye, the US, and the rest of the EU Member States, since the concept of copyright is seen to be directly related to the human author, it has been stated that copyright protection on AI-generated products cannot be established according to the current legal rules.

No copyright protection on the works produced by AI and accepting them as public domain seems like an abortive decision taken quickly to prevent confusion and uncertainty. Followers of this view associate the originality condition with a natural person and, therefore, claim that works produced by non-human beings are not eligible for copyright protection. Although this view, as a continuation of the traditional legal approach, is applicable, it is a glib and inefficient solution that also brings serious problems. Such an approach would deprive scientists and investors of legal protection who undertake great risks, effort, and economic obligation in studies in this field. The

most direct effect of the Romantic School approach in AI-generated products is the loss of interest in this field by scientists and investors. Also, no protection will lead people in this field to continue their work secretly, so it causes the commercialization of technological developments on the black market. This situation brings along problems such as transparency, audibility, and great economic losses. Moreover, since one of the primary purposes of copyright law is to reward the effort, especially in the common law approach, exempting AI-generated products from protection does not serve this purpose.

Therefore, I agree with the idea that if we evaluate the current legislation and court precedents, especially in the EU, the US, and Türkiye, AI-generated products cannot benefit from copyright protection due to the lack of originality which is a concept attributable to a natural person. However, I do not agree with the opinion that AI-generated products are not worthy of protection, and I believe that a system should be developed to protect AI-generated products.

Various proposals have been put forward regarding the protection of products generated by AI, and one of them, which is adopted by the Reformist School, is establishing a personality to AI. The idea of granting electronic personality status to AI was proposed by the European Union and has been criticized for reasons such as the lack of clear boundaries in the proposal and the lack of autonomy and judgment in robots. The EU abandoned this idea shortly after. Similar criticisms have been made in the evaluation of granting legal entity status to AI. Even if the AI is granted legal entity status, it has been stated that the rights still have to be executed by a natural person. The suggestions of expanding the concept of the natural person to include AI and granting slavery status to AI have not been able to find much support due to criticism that it would lead to moral and ethical problems in evaluating AI as a human and recalling the slavery instead of developing more progressive approaches.

When it comes to Modern School, a blended approach has been adopted, and several suggestions have been presented. Even though following the UK's model by separating the authorship and originality in work is suggested, the applicability of this system is approached skeptically due to the close relationship between the natural person author and the notion of originality in countries which adopted the continental law system, such as Türkiye and the majority of the EU Member States.

The work made for hire doctrine, which is widely used in US law, is also among the proposals for AI-generated products by the Modern School. The criticism regarding this issue is that this doctrine requires the presence of a person with the ability to sign contracts and that it must be clearly established that the AI-generated products are eligible for copyright protection for the doctrine to be applicable. Even though the idea of expanding the scope of the work made for hire doctrine is suggested, the transfer of moral rights remains a challenge.

With the EU Resolution on Intellectual property rights for the development of artificial intelligence technologies, the EU has abandoned the previous proposal of granting electronic or legal personality to AI and instead proposed a more modular system. The resolution makes a distinction between AI-assisted and AI-generated creations and states that AI-generated creations cannot be protected under the current copyright regime applicable in the EU. However, the Resolution stipulates that the ownership should be assigned to a natural or legal person if AI-generated products are considered eligible for copyright protection. Additionally, the EU also evaluates the applicability of other forms of IPRs, such as patents.

In my opinion, not providing any protection to the works generated by AI is against the logic of rewarding the efforts of the author. Also, no protection hinders innovations and technological developments. Technological breakthroughs involve serious effort, vision, investment, and risk, and all these efforts need protection. However, it seems unfair to establish the same level of protection as the works of natural persons due to the natural persons' incapability to compete with machines in terms of production rate, especially.

When I evaluate all the suggestions presented, work made for hire doctrine is emerging as an effective and applicable method to overcome this ambiguity. The work made for hire doctrine is conceived as an exception in US law. While the basic rule is that the author of a work should be the natural person who created it, in two explicitly regulated cases in the law, the author is designated as someone other than the natural person who created the work. In this sense, expanding this exception for AI-generated products could indeed be an appropriate approach. The most significant criticism of this approach is that moral rights cannot be assigned to another person, so a broad application could be achieved by excluding moral rights from protection. In this way, the doctrine could find applicability in Türkiye and EU Member States as well. However, considering that it is

still a developing field with unpredictable boundaries, providing long protection periods in this ambiguous atmosphere could later lead to irreversible losses of rights and damages. Therefore, it may be worth considering limiting protection periods to adaptable durations, such as 5 years, to accommodate developments.

It is crystal clear that there is currently a lack of sufficient legal regulation regarding the protection of AI-generated works in every country. The need for comprehensive, clear, and innovative regulation on the question of whether protection should be granted and, if so, what the boundaries should be, is becoming increasingly apparent. Therefore, adequate solutions should be produced before experiencing irreversible loss of rights and infringements due to legal uncertainty.



8 CONCLUSION

In the national open lesson of Yaroslavl City, Vladimir Putin stated that *"AI is the future, not only of Russia but of all of mankind. Whoever becomes the leader in this sphere will become the ruler of the world."*⁴⁸⁸

Initially, AI was used as an auxiliary tool in automation activities and for drawing specific conclusions from the given data. With the tremendous development it has shown, AI has turned into a structure that is feared to surpass human beings. Even though AI is far from dominating humans, for now, it has gone one step beyond performing simple automation activities to producing technical, literary, and artistic works. As a result of the influence of that development on the law, the legal status and the copyright protection of AI-generated products have become one of the most controversial issues in copyright law recently.

Copyright law is a field that significantly impacts the economic, social, political, and societal areas and the field of law. In the 21st century, unlike in the old times, one of the most significant powers of countries is the intangible rights which cover intellectual property rights. Copyright law brings extreme economic power in this sense, and the intellectual property policies implemented by countries play an important role in accelerating economic development, reducing poverty⁴⁸⁹ and fostering innovations, as it stated in the European Parliament resolution on intellectual property rights for developing AI technologies.

With the establishment of copyright in the modern sense, authors have gained extensive powers and rights over their works. These rights include both economic and moral rights.

When Turkish and EU copyright laws are evaluated, it can be seen that the general approaches are similar. The Turkish Law, while defining the author of the works in the FSEK, regulates that the author is the person who created the work, without including the phrase of a natural person. However, the Court of Cassation and legal experts of Turkish

⁴⁸⁸ Allen, G. C. (2017, September 5). Putin and Musk are right: Whoever masters AI will run the world. Retrieved December 22, 2022, from <https://edition.cnn.com/2017/09/05/opinions/russia-weaponize-ai-opinion-allen/index.html>

⁴⁸⁹ Parlakyıldız, F. M., & Güvel, E. A. (2015). Fikri Mülkiyet Hakları ve Bu Hakları Korumanın Ekonomik Önemi. Niğde Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, Vol. 8(4).

law agree that creation must be made by a natural person for a work to be born.⁴⁹⁰ Bearing the characteristic of the author, which is one of the conditions regulated in the FSEK, is defined as carrying parts of the author's inner world in intellectual creations. Creating products reflecting the human mind and conducting mental activities can only be performed by human beings according to doctrine and court verdicts. Therefore, a natural person is necessary to grant copyright protection over work according to Turkish Law, and AI-generated products cannot benefit from copyright protection according to Turkish Law.

In the EU, the domestic laws of some Members explicitly regulate the author as the natural person who created the work.⁴⁹¹ On the other hand, in some European countries, such as Lithuania, Belgium, and the Czech Republic, the term natural person is avoided.⁴⁹² However, when the ECJ decisions are examined, it is understood from the phrases such as personal touch and creation of the human mind used in several cases by the Court that the natural person is needed to fulfil the originality condition in the EU as well⁴⁹³.

Contrarily, Ireland has separated authorship and originality and regulated that computer-generated works benefit from copyright protection in its domestic law, contrary to the general approaches of the EU.⁴⁹⁴ In this sense, Ireland has adopted a system close to the UK, which is criticized as being in conflict with the authorship approach of the EU.

Contrary to Turkish and EU Laws, more innovative approaches have been adopted by the countries such as Canada, India, and China.⁴⁹⁵ In the cases regarding copyright protection over AI-generated products, various decisions and approaches have been adopted by those countries. India and Canada are the pioneer countries that issued an AI program co-authorship, which is shared by the author of the AI program. As a different approach, the

⁴⁹⁰ Detailed information can be found in Chapter 3.2.1.1.

⁴⁹¹ Detailed information can be found in Chapter 4.3.1.

⁴⁹² European Parliament Research Service, (2018, June). Copyright Law in the EU, Salient features of copyright law across the EU Member States. Retrieved December 22, 2022, from [https://www.europarl.europa.eu/RegData/etudes/STUD/2018/625126/EPRS_STU\(2018\)625126_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2018/625126/EPRS_STU(2018)625126_EN.pdf)

⁴⁹³ Detailed information can be found in Chapter 4.3.1.

⁴⁹⁴ Detailed information can be found in Chapter 6.2.2.3.

⁴⁹⁵ Detailed information can be found in Chapter 6.2.3.

China courts granted copyright protection to an AI-generated article and concluded that the creators of the AI program should use the rights. The US, on the other hand, insists that the presence of a natural person is required to grant copyright protection. These differences among the countries, which can be seen even among the EU Member States, indicate the necessity of establishing uniform and binding legislation movements on the subject.

Deprivation of protection on AI-generated products due to the absence of a natural person who created the work, establishing a personality status for AI and allowing the rights arising from authorship to execute another person on behalf of AI, and blended approaches that prioritize the protect the AI-generated products by interpreting the laws broadly are various suggestions to this highly disputable subject.⁴⁹⁶

When current legislations about copyright are examined, it is seen that most of the legislations applicable today are based on the 20th century's understanding. More traditional, more human-focused, and more old-fashioned than it should be. Almost no laws contain regulations on robots, the Internet of Things, or AI, which are the main discussion areas of today's world. It is not surprising that law stays behind technological improvement due to its nature. Still, the basic understanding of the law, which is the return of hundreds of years of experience, can produce effective and adequate solutions only when combined with current technological developments.

Regardless of the content of the agreed-upon decision, there is no doubt that the approach to be adopted will have a world-changing impact on the course of the world and the future of AI technologies.

⁴⁹⁶ Detailed information can be found in Chapter 7.

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