

Criminal liability arising from Artificial Intelligence crimes

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Abstract:

This study addressed one of the most important legal issues arising from the use of artificial intelligence applications, related to the criminal liability of these intelligent entities when they commit crimes against persons. This study examined the existing jurisprudential debate on the attribution of criminal liability to these intelligent entities by identifying the extent of recognition of their legal personality, as well as identifying the parties of criminal liability and the penalties that Can be imposed on artificial intelligence entities, trying to présent and analyse the relevant legal texts on the extent to which artificial intelligence entities benefit from the grounds of permissibility and contraindications to criminal liability.

Keywords: Criminal liability, legal personality, artificial intelligence, grounds for permissibility, contraindications to criminal liability, penalties.

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. INTRODUCTION

The use of artificial intelligence techniques and reliance on It in the conduct of all business and life matters has become a reality imposed by modern technologies, which has raised many legal issues, especially with regard to the criminal liability of these intelligent entities, considering That This liability Is one of the legal consequences of the crime as a fact recognized by the Law, which results in the perpetrator of the crime bearing the penalty established by legal rules.

The topic of artificial intelligence in Our current era Is one of the sensitive topics of great importance, due to the position it has occupied, as we do not find a field devoid of the use of artificial intelligence applications, but with this wide spread, crimes related to It Will increase, and therefore It was necessary to study this topic in terms of the legal challenges placed on the shoulders of legislators and judicial authorities in regulating the use of these entities, and establishing a legal framework for them that ensures that the sanctity of the lives and rights of people within society Is not violated, and who Is responsible to identify the real perpetrator in order to apply the criminal sanction to him.

The study aims to determine the criminal liability of Artificial Intelligence entities by answering the following question: What Is the extent of the application of the rules of criminal liability for crimes committed by artificial intelligence? Can the latter be held accountable as the original perpetrator of the crime or is it not held liable due to lack of legal personality?

In order to answer this question, we adopted the descriptive approach in order to remove the ambiguity surrounding the concept of artificial intelligence, as well as the analytical approach in order to analyze the liability resulting from the use of artificial intelligence entities, and try to link them to the legal texts that regulate or criminalize their use.

2. The Legal Framework for Artificial Intelligence

Despite the widespread and widespread applications of Artificial Intelligence technologies in all sectors and their rapid and endless

développement, There is still ambiguity related to the concept of Artificial Intelligence entities, So we will divide This research into two requirements. We will address the concept of artificial intelligence, then the advantages and disadvantages of AI in the criminal field.

2.1 The Concept of Artificial Intelligence

Artificial intelligence plays an important role in various fields of life, including the criminal field, through which various types of crimes are combated, and this prompts us to address the definition of artificial intelligence (Section I), as well as identifying the advantages and disadvantages of artificial intelligence (Section II).

2.1.1 Definition of Artificial Intelligence

To get to know what artificial intelligence is, we must first get to know the concept of human intelligence, where human intelligence is defined as “the ability and skill to develop and find solutions to issues using codes, different research methods for issues, and the ability to use the acquired experience in deriving new information and knowledge, leading to the development of solutions to issues in a specific field.” The level of intelligence varies from one person to another, and human intelligence is responsible for the development and creativity in the growth of different civilizations, and given the importance of human intelligence, man was and still is always searching about the nature of this intelligence and how to measure it and develop steps to simulate the methods of (Al-Najjar, 2010) In this section, we will first define Artificial Intelligence in language (first), and then define Artificial Intelligence in terms of terminology (second).

First: Definition of Artificial Intelligence

Intelligence means quick wit (al-Hussein, 1979) and the word artificial means artificial, artificial: It is an abbreviation of the word artificial, which is a gift, dignity, and favor (al-Fadl, 1968,).

As for artificiality in the sense of exaggeration in making, and so-and-so made for himself: He chose it: What is learned by learning from the masters of industries, and what is not natural, and it is said industrial silk, i.e. the industrial source, and a closer look at the word industrial or artificial shows that this word is related to the act of making or making and it symbolizes the making of something that is not natural, which makes this

word call all things that consist of the activity that results from the artificiality and formation of things in distinction from the things that already exist and are born naturally without human intervention (Yassin, 2012).

In fact, the word “artificial” shares the word “intelligence” with the word “intelligence” as it is often a compound word, and it is also one of the common words, as its meaning varies according to the compound word, such as artificial limbs, artificial memory, artificial nervous system and others.

Second: Definition of Artificial Intelligence Artificial Intelligence

There are many definitions of artificial intelligence, but reaching a comprehensive definition has not yet been achieved, as most definitions are either based on technology and the purpose of artificial intelligence as an application or as a machine, while some choose to define it by looking at its characteristics that approach human intelligence.

John McCarthy, the godfather of Artificial Intelligence, defined it as ([https://en.wikipedia.org/wiki/John_McCarthy_\(computer_scientist\)](https://en.wikipedia.org/wiki/John_McCarthy_(computer_scientist))): “A means of creating a computer, a computer-controlled robot, or a program that thinks intelligently in the same way that intelligent humans do; Artificial Intelligence is achieved by studying how the human brain thinks, how humans learn, decide, and act while trying to solve an issue, and then using the results of this study as a basis for developing intelligent programs and systems” (Dahshan, 2020).

Artificial intelligence can be defined as “a branch of computer science concerned with how machines mimic human behavior. It is the science of creating computer hardware and software that can think in the same way as the human brain, learn as we learn, decide as we decide, and act as we act” (Ibrahim, 2020).

It is also defined as: “That branch of computer science, through which it is possible to create and design computer programs that simulate the style of human intelligence so that the computer can perform some tasks instead of the human, which requires thinking, understanding, hearing, speaking, and moving in a logical and organized manner.”

While others defined it as: “Simulating human intelligence and understanding its nature by creating computer programs capable of simulating intelligent human behavior. Artificial Intelligence is currently found everywhere around us, from self-driving cars, drones, translation or investment software, and many other applications in life” (Al-Salmi, 1999).

Therefore, it can be said that artificial intelligence is the attempt to make a computer or a machine that works by programming like a human being, whether in his thinking, behavior, solving his issues, and practicing all aspects of daily life, through studies conducted on humans and extracting results that help explain human behavior and program this to apply it to the machine.

2.1.2. Characteristics of Artificial Intelligence

Artificial Intelligence entities have a set of characteristics and features that enable them to acquire a special subjectivity, as follows:

First: The ability to assimilate information: Artificial intelligence programs are characterized by the ability to absorb facts and information, store and encrypt them in rules through standard methods called knowledge representation, and accordingly create the knowledge base and provide this base with as much information and data as possible to solve the issues and issues that are presented to it, and thus the ability of artificial intelligence to understand the inputs and analyze them well to provide outputs that meet the needs can be said that the robot has become capable of continuous learning automatically and autonomously without being subject to control and supervision (Youssef, 2022).

Second: The ability to deal with incomplete information: One of the characteristics of artificial intelligence is its unlimited ability to deal with incomplete information and find solutions through it, and perhaps this ability comes originally from the ability of the Artificial Intelligence program to learn from previous experiences and practices, as well as the flexibility represented in improving performance to correct and correct errors.

Logical thinking in Artificial Intelligence is one of the different forms of thinking, as facts are deduced from the information available to it,

and logical thinking corresponds to human probabilistic thinking, and their ability to deal with all uncertain future circumstances, such as self-driving cars that may face the dangers of traditional roads and their ability to deal with these risks in an optimal manner (Lutfi, 2021).

Third: the ability to use the experimental method in solving issues:

Artificial Intelligence systems rely on the use of the empirical method by choosing a specific and good way to solve issues, it does not rely on a routine sequence of steps, and this important characteristic generated by the new systems in Artificial Intelligence work made it retain the ability to change the method if it is not clear that the first option does not lead to the optimal solution quickly (Ricardo, 2011).

2.2 Advantages and disadvantages of Artificial Intelligence in the criminal field

Artificial intelligence plays an important role in various fields of life, including the criminal field, through which various types of crimes can be combated, and this prompts us to address the advantages of artificial intelligence (Section I), as well as its disadvantages (Section II).

2.2.1 Artificial Intelligence Features

The amazing progress in the field of artificial intelligence technologies has enabled the development of programs that have capabilities that exceed human ability in the criminal field, there is no doubt that it has taken justice and security to an unprecedented era, and therefore we will address some of the uses of artificial intelligence in the criminal field from the classification of criminals (first), as well as the use of artificial intelligence in predicting crime and locating criminal hotspots (second), and the use of artificial intelligence in conducting searches to obtain criminal and scientific evidence (third), also the use of artificial intelligence in reconstructing the crime scene (fourth), and finally using artificial intelligence to evaluate prisoners in institutions (Fifth).

First - Using artificial intelligence to categorize criminals:

Artificial intelligence facilitates many tasks, especially in the legal aspect, as Artificial Intelligence software contributes to the classification of criminals easily and objectively away from personal whims, there is no

doubt that artificial intelligence is superior in this field to humans, as the machine is not subject to psychological influence, which reduces the rate of error when applied.

Second - Using artificial intelligence to predict crime and locate criminal hotspots: Artificial intelligence techniques help in detecting crimes and predicting crime rates, the type of crimes and places that could form criminal hotspots in the future, through software algorithms that are given specific data that analyzes that data and comes up with results that help in preventing crimes that are expected to occur, for example through artificial intelligence can identify customers who buy unusual amounts of chemicals that may be used in terrorist activities such as manufacturing hand grenades (Sakr, 2021, p. 41).

Third - Using Artificial Intelligence to conduct searches for forensic and scientific evidence: The search of homes is a preliminary investigation procedure, which the law grants to the investigating judge in the first place, and exceptionally to judicial police officers for crimes in flagrante delicto, according to Article 41 of the Code of Criminal Procedure, which sets restrictions that must be complied with by the person conducting the search, in addition to the fact that the search must focus on a crime that has already occurred (Al-Aish), The Code of Criminal Procedure regulates the entry and search of residences in Articles 44 to 48, where There are several examples of security innovations of Artificial Intelligence technologies in the field of conducting searches as a means of obtaining criminal and scientific evidence from them:

A - Ground-penetrating radar : This technology measures changes in the layers of the earth to a depth of up to 205 meters from the surface of the earth by measuring the recording and reflection of electromagnetic waves on a regular basis to detect objects buried underground such as drugs, weapons and explosives, and this technology is used by the scientific police team, forensic evidence and forensic medicine who need to conduct investigations and extract evidence from underground without resorting to digging and excavation, and this system is characterized by speed and accuracy (Sakr, 2021, p. 43).

B - Thermal Night Vision Cameras :These cameras are efficiently used on roads and areas in total darkness, and have the ability to identify people, cars and animals up to four times as far away as lamps.

Fourth - Using Artificial Intelligence to Reconstruct the Crime Scene : Most crimes that occur leave behind basic elements: the perpetrator, the victim, the instrument of the crime and the crime scene, the latter being the repository of the secrets of the crime committed, from which all evidence emerges (Lazrak, 2017), Crime scene experts work to explain how and express a myriad of implications that vary from one crime to another.

A decision network model has been developed to predict the type of case through the inputs (evidence and scenario) to help solve a case. A decision network model is defined as a probabilistic model that represents a set of variables and their dependencies across a graph and is an ideal model for predicting probabilities. For example, a network can represent the probabilistic relationships between diseases and symptoms, as well as the probabilistic relationships between evidence and the type of crime.

Artificial intelligence techniques can also help identify the perpetrator. Through complex programming and the use of specific algorithms, we can unravel the mystery of any incident by photographing the crime scene and studying the health condition of the accused perpetrator, we can prove whether or not he is capable of committing the behavior constituting the crime.

Fifth - Using artificial intelligence to assess prisoners in penal institutions :Artificial intelligence technologies can perform tasks of evaluating prisoners in penal institutions and studying their condition through reports that are entered into these systems and these systems analyze them and reach a neutral and transparent result regarding conditional release or completion of the sentence, and the extent can reach the establishment and management of a penal institution using artificial intelligence techniques without any human intervention.

Despite this important role that Artificial Intelligence technologies can play in the criminal field, the level of utilization of these technologies is not the same among all countries in light of the disparity between them in

terms of progress in the fields of technological research and use.

2.2.2. Disadvantages of Artificial Intelligence

In light of the rapid progress of artificial intelligence, an important aspect also emerges regarding the challenges and disadvantages of artificial intelligence that may arise with the use of this advanced technology, as Elon Musk, owner of Twitter and founder of the Open Artificial Intelligence organization, stated that artificial intelligence will be much more dangerous than nuclear weapons. Therefore, we will address the negatives and disadvantages of Artificial Intelligence in the criminal field of violating the sanctity of private life (first), hacking and compromising the private accounts of individuals, companies and banks (second), the terrorist use of Artificial Intelligence (third), and the possibility of deceiving Artificial Intelligence systems (fourth).

first - Invasion of privacy :The violation of the sanctity of private life and human privacy is one of the most important negatives that will result from the growth of artificial intelligence without legalizing it and setting legal controls and limits for it. All technology services that are currently and increasingly widespread require users to agree to allow artificial intelligence software to pull certain data, whether from the user's phone or the means he uses to access that technology, and analyze that data and obtain his interests for many purposes, the most important of which are commercial goals. The use of Artificial Intelligence technologies by governments to collect and control data is not always positive, and it can be used in a non-neutral manner, making it a tool for entrenching inequality and infringing on freedoms (Sakr, 2021, p. 49).

Second - Hacking and threatening the private accounts of individuals, companies and banks :There are malicious technologies based on artificial intelligence software that can hack, break codes and threaten the private accounts of companies, individuals and banks, there is a huge amount of malicious software specialized in hacking and account hacking available through thousands of platforms spread on websites for hacking software, and these programs have even become easy to purchase through several websites, which are programs specialized in the fields of

encryption or decryption.

Third - Terrorist use of artificial intelligence : Terrorist groups have been able to exploit technological development for the purpose of carrying out their terrorist operations in a focused manner by using social media to exchange content and communicate with selected groups of people who adopt the same ideas in order to achieve the terrorist strategy, by mining the information that terrorists seek to obtain, such as vital facilities, airports and important military places, and how to hide, communicate, plan and coordinate terrorist operations, thus allowing them the freedom of accurate planning and comprehensive coordination to launch specific terrorist attacks (Gharkan, 2024,).

Terrorist groups have also taken advantage of the various applications of artificial intelligence and employed them for terrorist purposes. The development of drones and their use in loading explosives is clear evidence in this regard, not to mention their use in the field of spying, tracking and monitoring targets in assassination operations that work with facial recognition systems to identify the face of the person to be eliminated and launch assassinations in a way that is difficult to trace.

Fourth - Artificial intelligence systems can be fooled : Security agencies in developed countries tend to rely on artificial intelligence systems to monitor and identify threats to the state's national security and also predict developments that may occur around the world, such as revolutions or unrest, but in the event that hostile countries succeed in determining how these devices work, it is easy for them and thus deceive them by publishing false news to mislead them and lead them to wrong conclusions, so they create an automated double agent secretly.

3 . Rules of criminal liability arising from artificial intelligence actions

The question of the development of artificial intelligence and the extent of liability arising from its actions has become the subject of legal challenges and issues arising from the fact that this entity enjoys a great deal of autonomy. When a human being is the full supervisor of the decision-making process of artificial intelligence, he is able to predict the

consequences of these decisions and bear the resulting responsibility, but what can also be envisioned is the idea of addressing the machine's liability for some harmful behaviors That take on the character of a crime and whose decisions cannot be predicted and whose results cannot be avoided based on deep and complex machine-Learning algorithms.

Accordingly, we address the existing jurisprudential debate on the attribution of criminal liability to Artificial Intelligence (first requirement), as well as the parties to the criminal liability of Artificial Intelligence entities and the sanctions prescribed for them (second requirement), and finally the availability of the grounds for permissibility and prohibitions of liability for AI entities (third requirement).

3.1 Jurisprudential Approaches to Attributing Criminal Liability to Artificial Intelligence

The idea of establishing criminal liability for artificial intelligence entities has raised several questions about the attribution of criminal liability to these entities among jurists. Accordingly, jurisprudence has been divided into two parts, the first is the trend rejecting the idea of criminal liability for artificial intelligence technologies (Section I), and the second is the trend supporting the idea of criminal liability for artificial intelligence technologies (Section II).

3.1.1 The trend against the idea of criminal liability for Artificial Intelligence actions

The majority of criminal legislation recognizes the moral basis of criminal liability, and in order for a person to be held criminally liable, his free will is required at the time of committing the crime, and therefore criminal liability is limited to the natural person. This is because the rules of criminal attribution are mainly related to the legal personality, which is originally established only for human beings, and this is natural because it is characterized by consciousness and awareness of what it commits. Hence, supporters of this trend believe that it is difficult to recognize artificial intelligence technologies with criminal responsibility based on the following arguments:

First - The impossibility of attributing the crime to Artificial

Intelligence entities due to its nature: Proponents of this view believe that the purpose of attribution is to hold the perpetrator responsible for the result of his act and thus subject him to the legally prescribed sanctions, and since attribution is one of the pillars of criminal responsibility, it is represented by the personal conditions and subjective elements of the actor, which means that the actor must have the necessary capacity to attribute the crime to him (Hisham Farid, 1981, p. 561.), The jurisprudence has tended to divide attribution into two interrelated parts, the first of which relates to the physical attribution that the perpetrator makes towards his act, as it is not enough for the crime to be committed for the criminal behavior of the perpetrator and the criminal result to be achieved, but it is also necessary that this result be attributed to that behavior, meaning that there is a causal relationship between them, while the second part is represented in the moral attribution, which requires the existence of a volitional link between the perpetrator and his crime, as the latter can only be attributed to the offender if he has the ability to realize and choose (Gabriel HALlevy, 2016), Thus, attribution is a prerequisite for the establishment of criminal liability.

If the basis of criminal responsibility is the will and freedom of choice, then if the perpetrator does not have freedom of will and freedom of choice, criminal responsibility cannot be established towards him, since if the robot commits criminal behavior, its loss of the element of will negates criminal responsibility, which can only be achieved if the robot enjoys consciousness and awareness at the time of committing the crime on the one hand and the ability to choose on the other hand, in addition to looking at the robot, we find that it is subject to orders and instructions through programming processes and does not have the freedom of choice, as the robot has no free will (Sakr, 2021, p. 83).

Second - Second The philosophy of criminal sanctions conflicts with the recognition of the criminal responsibility of artificial intelligence and the inapplicability of traditional sanctions: Criminal sanctions aim to achieve the idea of deterrence, both general and specific, according to the traditional school, as well as reforming the offender according to the positivist school. If we assume that Artificial Intelligence

entities commit a crime, if we apply traditional penalties to them, they will not achieve deterrence for other entities, nor will the main purpose of the penalty, which is to inflict pain on the perpetrator, be achieved. The main purpose of punishment is to inflict pain on the perpetrator of the crime, and this will not bear fruit unless it is replaced by a human being, and therefore it is not conceivable to impose traditional criminal penalties such as the death penalty and deprivation of liberty on the AI entity because it lacks the sensory aspect of pain or the feeling of fear of punishment (Omar Mohammed Muneeb Idlibi, 2023, p. 69). This is contrary to the philosophy of punishment and criminalization.

Third - Artificial Intelligence crimes are an application of the theory of the moral actor: Traditional jurisprudence has relied on the fact that Artificial Intelligence devices are objects without discernment and cognition, which makes their use to commit a crime no more than an application of the theory of the moral actor, according to which the moral actor is the one who uses others to carry out the crime and thus becomes a tool in his hand to help him achieve the elements on which it is based, as the moral actor carries out the crime through another well-intentioned or criminally irresponsible person, such as an insane or a young person (Ibrahim, 2020, p. 155). The legislator did not differentiate between the means used by the perpetrator in committing the crime, and this applies to the human being as a means of committing the crime, so criminal responsibility is excluded from him, and is attributed to the moral actor.

Fourth - Lack of responsibility of designers, producers and owners of robot users: The majority of jurists object to granting legal personality to artificial intelligence because these intelligent systems have not developed to the degree of programming and the status of humans, and the idea of granting legal personality is an idea conceived by humans to organize their transactions within the framework of their human relations, which is not conceivable with regard to the intelligent machine (Salam Abdullah Karim, 2021-2022,). Perhaps this was the reason for the objection of experts and specialists in the field of artificial intelligence from 14 European countries, who sent a strongly worded objection note to stop the

debate within the European Parliament regarding the denial of the legal personality of the robot because this requires that it enjoy other rights such as marriage and the right to own property, and they consider that this idea was found as a ploy by the owner or manufacturer to avoid legal responsibility, in addition to the idea itself posing a danger to public order.

Fifth - attributing crime to the Artificial Intelligence entity violates the principle of criminal legitimacy: Proponents of this trend believe that attributing a crime to an Artificial Intelligence entity violates the principle of the legitimacy of crimes and penalties, because by referring to the penal code in positive laws, we find that they address natural persons who have cognition, as most legal texts begin with the word “person...” or “persons shall be punished...” Most of the legal texts start with the word “person” or “punish persons (Omar Mohammed Muneeb Idlibi, 2023, p. 70).

3.1.2 The trend in favor of criminal liability for Artificial Intelligence technologies :The fact that the traditional jurisprudence of artificial intelligence does not recognize legal personality is due to their view that the robot falls within the legal characterization of things, without considering it a subject of criminal responsibility, but contemporary legislation had a different view, as it granted the robot a limited legal personality, due to the tremendous development that has occurred in the applications of artificial intelligence, which has the ability to learn and make decisions by processing data within it, and the robot has a reaction independent of its creator (Derbal, 2022, p. 459).

Accordingly, many calls have emerged in favor of granting legal personality to artificial intelligence, and thus having the ability to acquire rights and assume obligations, and supporters of this trend have argued that in order for the Artificial Intelligence entity to be held criminally accountable, we must recognize it as a legal personality, and supporters of this trend have relied on several arguments and proofs, which we address in some detail (Derbal, 2022, p. 456).

First - The analogy to the legal personality of legal persons :Artificial intelligence systems have become more complex and play a major role in society, which is why calls have emerged that they

should have some form of legal personality, and these calls started from the point of comparison with legal persons such as companies, institutions, and associations.

If we look at a legal person as a subject of law without a human body, we are talking about a vessel for rights and duties, so that robots become like companies, provided that each robot is registered in a register equivalent to the commercial register of companies and obtains legal personality from the time of registration, and from this time the damage caused by the robot can be compensated, and it bears the criminal responsibility it commits.

Second - There is no correlation between legal personality and human capacity :Legal personality as defined by the positivist school is a pure power to acquire rights, assume duties and participate in legal relations protected by the law to achieve certain goals, and thus it is not related to human qualities, as legal personality was first granted to the family and not the individual, and women, children and slaves were deprived of it on the one hand, and on the other hand, according to the economic, social and political development, the personality was granted to non-humans, such as companies that lack any human quality, and therefore it is possible to grant legal personality to the artificial intelligence entity, considering that legal personality is independent and has nothing to do with humanity.

Third - The possibility of replacing human cognition with artificial cognition :The amazing development has made the robot a new person with full consciousness and cognition that is available through sensory reception of data inputs and understanding them, and currently most robots are able to sense images, sounds and feel touch, and these technologies can analyze these data through processing aspects that resemble the human mind (Sakr, 2021, p. 96). The proponents of this trend believe that as long as the Artificial Intelligence entity has the ability to perceive and feel, it is a fortiori possible to assign criminal responsibility to it, and the unlinked decision-making between the Artificial Intelligence entity and the human being leads to the possibility of holding the Artificial Intelligence entity accountable for those decisions.

Fourth - The basis of criminal liability is criminal seriousness, not danger :The proponents of this trend went to deny the role of the will in committing a crime, and they considered man to be driven in his actions without choice, and denied the principle of freedom of choice, as the criminal does not commit the crime by choice, and therefore he is not held accountable based on his fault, but based on social responsibility, because the perpetrator has revealed his criminal dangerousness, and accordingly, according to the opinion of the proponents of this trend, if an act of the Artificial Intelligence entity results in a crime, he will be punished based on social responsibility, because the basis of responsibility is based on criminal dangerousness regardless of the line (Omar Mohammed Muneeb Idlibi, 2023, p. 63).

3.2. Parties to Artificial Intelligence entities' criminal liability and penalties

Criminal liability is the legal effect that results from the perpetrator's commission of a crime and his obligation to bear the consequences of his criminal behavior, which he did intentionally and knowingly, or unintentionally (Said Bouali, 2016).

The commission of a crime does not inevitably lead to the legally prescribed punishment, unless the judge proves the criminal liability of the perpetrator, as these modern entities have four parties associated with criminal liability in this type of crime. Therefore, we address the parties to criminal liability for Artificial Intelligence crimes (Section I), followed by the sanctions prescribed for them (Section II).

3.2.1. Artificial Intelligence Criminal Liability Parties

In this section, we address the criminal liability of the manufacturer (first), the criminal liability of the owner or user (second), the criminal liability of the AI itself (third), and finally the criminal liability of third parties for AI crimes (fourth).

First - Criminal Liability of the Factory :It is well known that the Penal Code has established a general principle that a natural person is liable for the criminal act that he commits, unless he meets any of the contraindications to criminal responsibility, and that legal persons are

criminally liable for the crimes committed by their representatives, directors or agents on their account or in their name and are sentenced to the fine, confiscation and measures prescribed for the crime, without preventing the court from simultaneously punishing the perpetrator of the crime personally with the penalty prescribed for the crime in the law (Aleem, 2024).

The criminal liability of the Artificial Intelligence factory is one of the most important issues raised when the latter commits any behavior that constitutes a crime according to the law, and therefore the research on the criminal liability of the factory was a necessity to clarify the extent of its role in criminal liability as it may protect the factory itself through clauses mentioned in the use agreement, which is signed by the owner and holds the owner solely responsible for criminal liability for crimes committed through this entity (Mohamed Naguib Hamed Attia Dabisha, 2023, p. 2303), However, a crime may occur as a result of a programming error by the programmer of the artificial intelligence program. It may happen that the programmer issues artificial intelligence technology with errors that cause crimes and thus is criminally liable for them, and a distinction must be made between whether his behavior is intentional or not in order to determine whether the crime was committed intentionally or accidentally, as the penalty prescribed in each case is different (Mohamed Naguib Hamed Attia Dabisha, 2023, p. 2304), It is also incumbent upon the manufacturer to adhere to certain standards when preparing artificial intelligence programs, the most important of which is that they must meet the guarantees of safety and security, that is, the product must be free of defects that may endanger those who deal with it, in addition to its compatibility with the values and traditions of society, and then the manufacturer bears criminal responsibility for the Artificial Intelligence crimes that he manufactured in the event that any crime occurs due to it as a result of manufacturing defects.

Second - Criminal liability of the owner or user :The owner or user means that person who owns and operates artificial intelligence technologies, and therefore, this technology may be used in a wrong way and for other than the purposes intended for it, which results in the

occurrence of one of the acts that are considered a crime according to the law (Mona Mohamed Al-Atris Al-Desouki, 2022), In this case, we must distinguish between three possibilities:

A - The crime occurred as a result of the owner or user alone, without his behavior, the crime would not have occurred, and here the full criminal responsibility falls on him. For example, the user or owner disables the automatic control of the self-driving car and retains only the voice directives issued by the artificial intelligence program, and thus here he is the sole controller of the car, and if the program alerts him of a specific order to avoid an accident and he does not carry out this order, the criminal responsibility falls on him alone (Dahshan, 2020, p. 29).

B - The occurrence of the crime as a result of the owner's behavior in conjunction with one of the other parties, such as the factory, the artificial intelligence technology itself, or another external party. For example, the owner of a car changes the operating commands contained in the self-driving car with the help of a specialist in this field in order to exploit it in order to commit a crime and deny criminal responsibility from him and attach it to the car and its manufacturer, in this case the criminal responsibility is joint, and we note that the Algerian Penal Code addresses participation and criminal contribution in articles 41 to 46 of the Algerian Penal Code and defines the cases of participation in the crime by aiding and abetting (Code.), The Egyptian Penal Code defines the cases of participation in the crime in Article 40 of Law 58 of 1937 (Law No. 58 of 1937, as amended and supplemented by Law No. 95 of 2003.)

Third - Criminal liability of the Artificial Intelligence itself : Talking about artificial intelligence committing a crime on its own at the present time is considered a form of fantasy, and without a programming error as a result of the occurrence of self-development in the artificial intelligence system that works with it and is capable of thinking and issuing decisions, but this is a possible occurrence due to its association with the data generated by the development and scientific imagination, and therefore, scenarios can be developed for the occurrence of crime by the artificial intelligence itself as follows (Dahshan, 2020, p. 31):

A - The artificial intelligence may commit the crime itself without the fault of programmers, manufacturers, its owner, or any other third party, in which case the intelligent robot or artificial intelligence is solely criminally liable.

B - The participation of another party to the artificial intelligence in committing the criminal act and thus being a partner in this crime, for example when smart cell phone users root the phone, which allows some applications to control the phone and control it, which may lead to it destroying itself programmatically (Omar Mohammed Muneeb Idlibi, 2023, p. 96).

Fourth - Criminal liability of an external party for artificial intelligence offenses :In addition to the owner and the user, an external party may intervene in Artificial Intelligence crimes, as the latter enters the Artificial Intelligence system through hacking or in any other way so that it controls it and exploits it to commit the crime, in this case we are faced with two hypotheses (Mona Mohamed Al-Atris Al-Desouki, 2022, p. 1191):

A - Joint criminal liability of the external party: The external party exploits a loophole in the artificial intelligence to commit its crime, and this loophole was the result of the negligence of the owner or manufacturer of this technology, so the criminal liability here is shared between the external party and this person whose negligence caused the exploitation of this loophole, for example, the owner of the artificial intelligence gave the access code to the control system of the artificial intelligence technology to this external party, which made it easier for him to issue orders to the artificial intelligence.

B - Full criminal liability of the third party: If the external party exploits the Artificial Intelligence vulnerability without the assistance or negligence mentioned in the previous case, full criminal liability falls on this external party, for example, the external party hacking into the cloud (Mourad, 2022), through which things are stored and sent to the Artificial Intelligence and command the Artificial Intelligence to commit a specific crime, such as ordering the software to attack people with certain characteristics (skin color, costume).

3.2.2 Penalties for Artificial Intelligence entity offenses

The principle of criminal legality is the foundation on which criminal law is based, as Article 1 of the Algerian Penal Code stipulates that: “There shall be no crime, punishment or security measures without a law”) Article 1 of Ordinance No. 156-66 of 18 Safar 1386(, Accordingly, it is not permissible to criminalize an act and impose punishment on its perpetrator except according to a legal text prior to the commission of that act, and this is settled by various comparative legislations, and from this perspective we address the penalties that can be applied regarding Artificial Intelligence crimes (first), then the penalties imposed on the owner and user of artificial intelligence (second), and finally the penalties imposed on the Artificial Intelligence entities themselves (third).

First - Penalties imposed on the manufacturer of the Artificial Intelligence entity : The factory means the producer, who is more knowledgeable and capable of controlling and dealing with Artificial Intelligence technologies by programming it correctly so that it can be controlled on the one hand and also prevent its risks by following safety controls and procedures that prevent these technologies from deviating from them, thus the possibility of committing crimes in the future (Omar Mohammed Muneeb Idlibi, 2023, p. 109).

The penalties imposed on the manufacturer of artificial intelligence technologies are as numerous as the crimes committed by artificial intelligence entities, regardless of the order of criminal liability, whether it is the result of negligence on the part of the manufacturer when establishing its controls, or criminal liability resulting from intent and intention; that is, the manufacturer deliberately developed a program that causes the artificial intelligence entity to commit the criminal act, and therefore the traditional penalties can be imposed on the manufacturer (Youssef, 2022, p. 142).

The severity of the penalties imposed on the manufacturer of Artificial Intelligence entities varies according to the severity of the crime committed by this entity, which the manufacturer neglected when establishing its controls to prevent it from committing criminal acts, and these penalties range from death, imprisonment or a fine depending on the seriousness and

gravity of the criminal act and the serious damage it causes (Waleed Saadeddin Mohamed Saeed, 2022).

Second - Penalties for the owner of an artificial intelligence entity :The possessor or user of an artificial intelligence entity is necessarily its owner, and therefore the use of artificial intelligence techniques to commit a crime by the owner requires the application of criminal penalties that vary according to the type of crime committed, as the user in possession of the artificial intelligence entity is the person who can exploit it to commit criminal acts against persons and property, and these crimes are described as intentional crimes, and the wrong operation of artificial intelligence technology may result in criminal behaviors, and here the user's responsibility is presumed and that is when the method of operation and security guarantees are guaranteed by the manufacturer (Youssef, 2022, p. 144).

On the other hand, the owner or user of the artificial intelligence entity, once the ownership of the intelligent machine is transferred to him, is criminally responsible for all the crimes it may commit, which necessitates the imposition of the appropriate penalty for that, taking into account the distinction between crimes committed by the artificial intelligence entities themselves with their own will independent of the owner or user, which are crimes that are caused by the owner or user due to his negligence, which requires the application of appropriate penalties on the owner or user, which are the same penalties that can be imposed on the manufacturer or producer of these smart technologies, which are classified according to their seriousness by Ki (Mona Mohamed Al-Atris Al-Desouki, 2022, p. 1203).

Third - Penalties imposed on the artificial intelligence entity itself :It is not possible to talk about penalties applied to the Artificial Intelligence entity itself without recognizing its legal personality, as the basis of criminal responsibility, as mentioned above, is cognition and discrimination, and the penalty can only be imposed if this technology has the ability to act away from the parties connected to it (the manufacturer and the user).

In this regard, we say that the tremendous development in the

manufacture and programming of artificial intelligence systems has made them capable of self-development and thus the possibility of committing crimes on their own will without interference from others, and therefore it was necessary to find penalties that are appropriate to the nature of this technology, so it is not conceivable to apply traditional criminal penalties, but rather to modify the robot, such as committing a crime, disabling it, or changing its use.

Looking ahead to the future, contemporary jurisprudence sees the need to search for alternative penalties to face the potential danger that has become imminent, and examples of such penalties include (Omar Mohammed Muneeb Idlibi, 2023, pp. 108,109,110) :

- Dissolution, suspension and confiscation, which are penalties similar to the death penalty for a natural person.
- Financial penalties, which are paid to the state treasury and deducted from the AI's financial liability.
- Negative sanctions that include rehabilitation and reprogramming measures or withdrawal of the driver's license in the case of self-driving cars.

3.3. The availability of permissible and prohibited grounds for liability for artificial intelligence entities

Criminal acts are subject to objective circumstances that deprive them of their criminal character and make them permissible acts and behaviors, so although they contain the elements of the crime, this behavior is permissible and not punishable (Zaghai Baghcham, 2022/2023,). These circumstances are known as grounds for permissibility (Section I), and are similar to prohibitions of liability in that they are not punishable (Section II).

3.3.1.The availability of permissibility grounds for artificial intelligence entities

The Algerian legislature, like other comparative legislations, limited the grounds for permissibility to the act ordered or authorized by the law and the legitimate defense. We address the right of legitimate defense of the Artificial Intelligence entity (first), and the right of legitimate defense of the Artificial Intelligence entity for the owner or user (second).

First - The right of legitimate defense of the artificial intelligence entity : We address the right of legitimate defense in Algerian law (a), and the right of legitimate defense in Egyptian law (b).

A - The right of legitimate defense of the artificial intelligence entity in Algerian law : Algerian law regulates the right of legal defense through Articles 39/2 and 40 of the Algerian Penal Code, as amended and supplemented by Law No. 24-06 (Article 39/2 and Article 40 of Ordinance No. 156-66 of 18 Safar 1386, corresponding to June 8, 1966, Algerian Official Gazette, No. 49, 1966, amended and supplemented by Law No. 24-06 of 19 Shawwal 1445, corresponding to April 28, 2024, containing the Alg), which show that the Algerian legislator limits the right of legal defense to a natural person to protect himself, his property, or the property of another person, and there is no reference to granting this right to other entities, even implicitly.

B. The right of legal defense for artificial intelligence entities in Egyptian law : According to the Egyptian Penal Code, Artificial Intelligence entities enjoy this right, which the law grants only to natural persons and not to other entities (Youssef, 2022, p. 147), The meaning of Article 245 of the Egyptian Penal Code Article 246 of this law adds that the right of legitimate defense is only an exception to the original, and therefore it is clear that Egyptian law does not recognize the legitimate defense of the artificial intelligence entity at all, because if this right is recognized for the robot and it kills the human who attacked it, we will equate the life of the human being with the life of the machine.

Second - The right of legitimate defense of the artificial intelligence entity on behalf of the owner or user:Comparative legislations are unanimous in addressing only the natural man regarding the right of legitimate defense of the self, property, third party or his property, but in practice, an intelligent robot can, if it has the ability to distinguish between the act of attack on the owner and the act of defense that it performs, defend the owner (natural man), and in the event that the robot exceeds the defense, its owner will be asked for this transgression.

3.3.2. The availability of liability contraindications for artificial

intelligence entities

If the reasons for permissibility are related to the legal and legal component of the criminal act, the contraindications to liability are related to the moral component, and therefore they do not affect the crime, but only prevent the application of the criminalization text to those who committed the criminal act. Accordingly, the presence of one of the permissible reasons in the person committing the criminal act removes the criminal liability of this person, and we also find this result in some reasons such as personalized liability contraindications, where this is due to the failure of an element of the moral element of the crime (Mona Mohamed Al-Atris Al-Desouki, 2022, p. 1186).

Jurisprudence goes on to propose rules regarding the impediments to criminal liability for an artificial intelligence entity, so that the robot can benefit from exemption from punishment if an external party interferes in its behavior, which leads it to deviate from its usual and programmed behavior.

With reference to the Algerian legislator, we find that he addressed the impediments to liability in Articles 47, 48 and 49 of the Algerian Penal Code, namely insanity, youth and coercion, and on this basis, in order to apply these rules related to the impediments to liability of the natural person to artificial intelligence entities, the intelligent robot must have the ability to perceive, distinguish and choose behaviors and actions (Youssef, 2022, p. 151).

We believe that artificial intelligence entities cannot be granted the right of legitimate defense unless the aggressor against this entity is a being that is not a human person, and in the sense that the intelligent robot has the right of legitimate defense if the aggressor is of its own kind, and this right cannot be granted to the intelligent robot to protect its owner or user if the aggressor against its owner is a natural person.

As for the benefit of artificial intelligence from not being punished if it commits crimes, rules must be established to determine which intelligent entities benefit from this privilege, in addition to those entities that cannot be lifted from punishment.

4. CONCLUSION

The current era is characterized by the spread of artificial intelligence technologies in various fields of life, and therefore the research of crimes related to these technologies has become an inevitable necessity to reach criminal responsibility for those crimes committed through artificial intelligence, in addition to the need to legalize the status of artificial intelligence so that we can hold it criminally accountable for crimes committed through it. At the conclusion of our study on the subject of criminal liability arising from Artificial Intelligence crimes, we came up with a set of findings and recommendations as follows:

- These entities are characterized by attributes that enabled them to acquire special subjectivity, most notably: The ability to assimilate information, deal with incomplete information, use the empirical method in solving issues, and their ability to infer.

- Some comparative legislations recognize the legal personality of Artificial Intelligence entities so that they can be held criminally accountable for the criminal acts and behaviors resulting from them as independent entities.

- The issue of establishing criminal liability for crimes committed by these technologies is semi-complicated due to the multiplicity of parties involved, from the manufacturer, to the owner or user, to the Artificial Intelligence entities themselves and external parties.

- Holding these entities criminally accountable entails punishing them, and this punishment must be commensurate with the nature of these smart technologies.

- The right of legal defense can only be granted to these entities if the aggressor is a physical entity, i.e. a non-natural being.

- The inadequacy of general criminal law texts in accommodating, organizing and defining criminal responsibility and punishment for crimes resulting from the use of Artificial Intelligence entities.

Based on the findings, the following recommendations can be put forward:

- The need for current criminal legislation to keep pace with the

development in the field of artificial intelligence by introducing legislative amendments appropriate to the new crimes that may be caused by the use of smart applications.

- Find appropriate penalties for crimes resulting from the use of artificial intelligence, and tighten the penalty when it comes to the manufacturers and owners of these entities to prevent them from escaping punishment.

- Establish controls and standards that define the manufacture, programming, and use of Artificial Intelligence machines and programs to avoid making serious mistakes by these entities.

- Pay attention to the seriousness of the issue in light of the widespread spread of these entities by holding seminars and scientific conferences to help avoid the danger coming from technology.

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