AL-BIRUNI

Al-Biruni Journal of Humanities and Social Sciences
Vol. 01, No.12, 2023, pp. 1-8
ISSN 3104-8900
https://al-biruni-journal.jo

Artificial Intelligence Systems: Legal Personality and Civil Liability

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ARTICLE INFO

Article history
Received Nov 02, 2023
Revised Nov 04, 2023
Accepted Dec 06, 2023

Keywords
Artificial Intelligence Systems;
Legal Liability;
Civil Liability;
Defective Products

ABSTRACT

Artificial intelligence systems have developed in such a way that they are characterized by simulating human mental responses, which has resulted in several great benefits for humanity. However, these systems were not limited to the positive aspects; they also showed their negative side, which can cause harm to individuals and property, thus necessitating a legal examination of the framework of civil liability for damage caused by them, focusing on the basis of such liability and mechanisms for enforcing it.

Accordingly, the study aims to clarify the legal nature of these systems, while foreseeing future possibilities of granting them an electronic or digital legal personality distinct from the legal personality assigned to traditional legal persons.

The results of the study concluded that civil liability for damages caused by AI systems and technologies should be based on two theories: Liability for things and liability for defective products, including a presentation of jurisprudential opinions both supporting and opposing these two theories, as they represent the main components of civil liability in this field.

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https://al-biruni-journal.jo
Vol. 01, No. 12, 2023, pp. 1-8
ISSN 3104-8900

1. Introduction

First: The subject of the study

Artificial intelligence is notably effective due to its ability to simulate human cognitive functions through its simulation of human mental abilities, and sometimes even surpasses it, in its advanced stages, artificial intelligence has been developed using massive databases through which it can simulate humans in terms of thinking, analysis and decision-making, and there is growing concern about the future of artificial intelligence systems and techniques if they are used or programmed in dangerous areas that may lead to the extinction if they surpass human capabilities and escape the control of their developers, which necessitates a proactive legal analysis of this development, as this study will explore the extent to which artificial intelligence may be granted legal personality and indicate civil liability for artificial intelligence damage in Jordanian legislation and cite some laws.

Second: Importance of the study

The importance of this topic is due to the fact that it is one of the new and important topics that will become increasingly significant in the future, and it is undoubtedly the language of the future, because it is necessary to clarify the legal rules regarding damages caused by AI technologies, especially as these systems increasingly dominate modern life, and hence the need to discuss ways to regulate them in light of their complexity, and since artificial intelligence represents a branch of science, it falls within the most complex and ambiguous issues of law, and this matter is further complicated by the fact that this type of intelligence by its nature belongs to the most dangerous technologies.

Third: Objectives of the study

The study aims to define artificial intelligence and compare it to modern systems and technologies, and to clarify the legal nature of artificial intelligence and the possibility of granting artificial intelligence legal personality, in addition to the extent to which the rules of civil liability and civil liability for defective products from the damage of artificial intelligence are applied according to civil liability.

Fourth: Problem of the study

Artificial intelligence is both a scientific discipline and a new phenomenon that impacts not only legal frameworks but also society as a whole which has led to public concern about the potential harm it may cause, and the reason for the lack of a law regulating the rules of artificial intelligence, especially since an error may occur due to artificial intelligence systems and techniques that result in damage to others, and the fact that there is no Jordanian legislation regulating artificial intelligence, prompting the question of whether existing civil liability rules adequately address damages caused by AI to damage caused by artificial intelligence, so the objectives of this study can be stated in more detail as follows:

- Can artificial intelligence be granted legal personality?
- What is the difference between virtual and legal personality of AI?

- To what extent do the rules of civil liability for AI damage apply?
- To what extent do the rules of liability for defective products from AI damage apply?

Fifth: Methodology

In this study, the researchers will rely on the analytical-deductive approach, which applies theories based on new and novel elements through specific steps consisting of introductions and conclusions; with the aim of reaching the adequacy of these laws by developing a tight legal framework on the extent to which artificial intelligence can be granted legal personality and civil liability for artificial intelligence damages.

Sixth: Scope of the study

In this study, we will discuss the possibility of granting artificial intelligence legal personality and the statement of civil liability for artificial intelligence damages in the general rules of the various laws of the Hashemite Kingdom of Jordan, especially in the absence of specialized legislation governing this technology, with reference to the rules of other laws.

Seventh: Previous studies

The study of Muhammad Ibrahim Hassanin (2021), Artificial Intelligence and civil liability for the harms of its application: The study analyzed the types of civil liability for damages caused by the application of artificial intelligence, whether contractual liability or tort liability in Egyptian law.

The study of Reda Mahmoud Al-Abed, (2022) Medical civil liability in the face of the development of artificial intelligence technologies: The brief study dealt with an attempt to try how medical artificial intelligence develops the legal logic of the civil liability law, by explaining the current rules, compatibility with new risks, and compensation for damages resulting from the use of artificial intelligence.

Eighth: Study Plan

The study plan, therefore, will be divided into two researches, followed by a conclusion that includes the results of the study and recommendations as follows:

- Chapter I: Artificial Intelligence Systems and Their Legal Nature
- Chapter II: The Provisions of Civil Liability for Artificial Intelligence Damages

2. Chapter 1

What artificial intelligence systems and technologies are and their legal nature

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Modern inventions have brought about a great development, large industries and rapid means of transportation have risen, and humans have harnessed natural forces for their benefit, often without fully controlling them, which sometimes leads to unintended consequences that they cannot fully control and which may spiral out of their hands, he will soon be its victim , and among these developments are artificial intelligence systems and technologies, here it is necessary to understand what artificial intelligence is and its legal nature, so the researchers will divide this research into two requirements as follows:

Section I: The concept of artificial intelligence

Artificial Intelligence is the product of two scientific fields: Behavioral and neuroscience, and informatics, which is now known as "information science". This field focuses on developing algorithms and methods—both theoretical and practical—for automating decision-making, whether fully or partially in cooperation with humans. It can predict, adapt, and respond to environmental changes, and is considered intelligent if it is able to make new decisions automatically and adapt to environmental changes. The program is considered intelligent if it is able to make new decisions automatically and adapt to new circumstances on its own, regardless of whether these behaviors are pre-programmed or not , and to illustrate the concept of artificial intelligence, the researchers will define artificial intelligence, clarify its characteristics and distinguish it from some similar systems in the following two branches:

One: Definition and characteristics of artificial intelligence

First: Definition of Artificial Intelligence:

Scholars differ on whether artificial intelligence constitutes an independent discipline, while others believe it is a sub-branch of computer science .

Artificial intelligence is defined as: "one of the main pillars on which the technology industry is based in the current era, and the ability of machines and digital computers to perform certain tasks that mimic and resemble those performed by intelligent beings, such as the ability to think, the ability to learn from previous experiences, or other processes that require mental operations . Another perspective defines it as one of the modern computer sciences that search for advanced methods to do human work using their intelligence .

The previous definitions that considered AI as a science, whether it is an independent science or a branch of computer science, were criticized due to the fact that they greatly reduce the fields and disciplines that are interested in artificial intelligence, as well as not shedding light on the nature and reality of intelligence, its capabilities, tasks, and learning mechanisms .

As for the legal definition of AI, with reference to the laws in force in Jordan, we note that the Jordanian legislator did not provide a clear and explicit definition of artificial intelligence, except that only vague references were made to terms such as the electronic medium, which is defined in Article (2) of the Electronic Transactions Law No. (15) of 2015 as "An electronic program that is used to perform an action or respond to an action automatically with the intention of creating, sending or receiving an information message." It is noted that it is closer to the definition of artificial intelligence, although this definition is limited to some features that may characterize artificial intelligence techniques, such as extrapolation, autonomy when sending, the ability to learn and make decisions independently without human intervention, as well as the skill of deduction .

The researchers believe that it can be concluded from these definitions and previous efforts that artificial intelligence can be defined as a science based on enabling machines and electronic devices through algorithms and software to perform mental operations in various fields that require intelligence by simulating it with the same characteristics that simulate the intelligence of the human mind, with the aim of solving dilemmas and making decisions.

Second: Characteristics of Artificial Intelligence:

The most important characteristic of artificial intelligence is that it represents knowledge, as artificial intelligence techniques use a special structure to describe knowledge, which includes a set of facts, the relationships between them, and the rules that link these relationships, which as a result is the knowledge base, which in turn provides as much information as possible that the techniques need to find a solution to an issue, and artificial intelligence is based on empirical research, which is an approach that selects an appropriate method for the solution appropriately, and it is possible to change it to another more successful method, if the first option is not found to lead to a quick solution, so it focuses on achieving the goal . Artificial intelligence can operate under uncertainty by offering solutions based on incomplete data in the event that the given data is incomplete or uncertain, and artificial intelligence techniques are considered learnable if they are connected to machine learning programs, from previous experiences and practices through observation or utilizing some information in order to be able to improve their performance, and this ability is related to the ability of techniques to infer similar and selective cases to the presented issue, and then neglect some excess information . Another key feature of AI is inference, which is the event or process of reaching a conclusion by abstractly relying on what the techniques know before, where new facts are deduced from the old, and inference is logically recorded as deductive inference and inductive inference , if it is related to machine learning programs.

However, this does not mean that they do not have some disadvantages, and we do not mean technical disadvantages. For example, these technologies and systems are not aware of human values and ethics, due to the fact that they implement only what they are designed for, and they cannot develop or change their system on their own even when they receive the same data every time, and perhaps the main disadvantage appears in that the process of designing, programming, implementing and even maintaining such technologies is very expensive.

Two: Distinguishing it from some similar systems

In order to distinguish artificial intelligence from some similar systems, the researchers will explain it as follows:

First: Robot

Some people confuse AI and robot, but this opinion is wrong, there is a clear difference, so it is necessary to set some criteria to distinguish between AI and robot.

A robot is defined as: Those programmable machines that can generally perform a series of autonomous or semi-autonomous actions, and AI is similar to a robot in terms of tasks, as both are made to perform the tasks assigned to them in a similar way to humans . Through the previous definition, the researchers conclude that AI differs from robots in its ability to make autonomous decisions, while a robot cannot make decisions on its own and does not have the high intelligence that characterizes artificial intelligence.

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Artificial intelligence also differs in terms of performance and function by analyzing a large amount of data, the ability to make decisions on its own, and extrapolating information, which allows artificial intelligence to do the work that humans can do, while the robot performs simple operations such as performing tasks assigned by humans, and artificial intelligence is a program that does not have a physical presence in the real world, that is, it has no physical structure but an algorithm with a high level of intelligence, while a robot is a machine that has a physical form or external structure in the real world so that it can perform the tasks assigned to it.

Second: Directed Systems:

What distinguishes artificial intelligence from controlled directed systems is the personal intervention by humans, as artificial intelligence does not need personal intervention by humans to be able to perform the tasks assigned to it, as it performs its role without user intervention, while directed systems are those systems that need personal intervention by humans to be able to perform the tasks assigned to them .

Thirdly: Automated Systems:

Automated systems or mechanized systems are systems similar to guided systems in terms of performing tasks such as: The main goal of the artificial intelligence industry is to find machines that are able to think and carry out the tasks assigned to them like the human mind, while "automated" automated systems are those that accelerate common and repetitive tasks to obtain high productive efficiency, as for the control standard for artificial intelligence is a system that performs tasks independently of humans, while automated systems need programming to achieve their purpose, as automated systems cannot do any work without receiving commands from their user and owner .

Section II

The Legal Nature of Artificial Intelligence

The virtual personality of artificial intelligence is considered a stage prior to the legal personality, and jurisprudence argues that artificial intelligence can be attributed within the rules governing objective consideration in terms of being a product or object, and therefore this section will be divided into two parts:

One: Relating Artificial Intelligence to the concept of a thing

Article (54) of the Jordanian Civil Code defines things as: "Everything that can be physically or mentally possessed and can be legitimately utilized and does not fall outside the transaction by its nature or by virtue of the law can be the subject of financial rights."

A thing is defined as every material, non-living, and non-moral thing that needs special protection, excluding moral things, animals, and construction, as the legislator has special rules for animals and construction. Things are divided into several sections, the most

important of which is stability and consistency, and are divided into real estate, movables, real estate by allocation, and movables according to money, and the condition for dealing in these things is that they are suitable for dealing in them, whether by nature or by law, as explained in Article (54) of the Jordanian Civil Code, but things that are outside the scope of legal transactions by nature cannot be owned by anyone, and things that are outside dealing with them by law are not valid to be the subject of financial rights.

Article 291 of the Jordanian Civil Code stipulates that "Whoever has at his disposal objects that require special care to prevent their damage or mechanical machinery shall be liable for the damage caused by these objects, except for what cannot be prevented, without prejudice to the special provisions in this regard."

According to the researchers, the Jordanian legislator tended to consider an object to be any material, non-living thing and if we were to apply the concept of a thing to artificial intelligence, we would find that it can be categorized as a thing, since intelligence is a non-living material thing.

A part of the jurisprudence goes to consider artificial intelligence as a thing, so that this intelligence has its own custody, and this custody is assigned to one of the persons involved in the manufacture of that intelligence so that this intelligence is guarded, and another trend goes that it cannot be categorized within the concept of a thing from several aspects: The personal aspect: because it is difficult to determine the custody of these smart technologies because of the intervention of several people in the manufacture and design of these systems, the objective aspect is that they are considered as intangible things, i.e., intangible, according to the text of Article (56/2), things that are outside the dealing by their nature because they are among the intangible elements because they are based on high-precision algorithms, and the actual aspect is difficult to control these smart systems that make decisions on their own after their manufacture is completed.

The researchers believe that if the concept of inertia does not apply to artificial intelligence, as the concept of inertia means the inability to move, Artificial intelligence operates based on movement and continuous processing, this takes it out of the framework of inertia, as for the object, if we want to describe the object on artificial intelligence, it is subject to difference on the one hand, it cannot because artificial intelligence is based on analysis and thinking independently of humans, and on the other hand, the object can be

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described on artificial intelligence because the object is everything that is included in material, not moral, and this object is non-living.

Two: Artificial Intelligence in relation to the concept of a product

The aspect of jurisprudence that considers artificial intelligence for humans as a moral intellectual product that is associated with copyright, as it can be considered a product, and not, as mentioned earlier, that it applies in principle to the material and moral object.

The Jordanian legislator defines a standard through the Standards and Metrology Law No. (22) of 2000 in Article (2) as "The registration document, guidelines or characteristics of service, products or production methods and management systems for general and repeated use, and also includes conditions, symbols, data, marking instructions and labeling requirements that apply to the product or its production methods or settled on any of them, the conformity to which is not mandatory."

The Jordanian Consumer Protection Law No. (7) of 2017 defines the commodity (product) as: "Any movable property that the consumer obtains from the provider, even if it is attached to an immovable property, including immovable forces such as electricity." The Jordanian Court of Cassation also defined a good (product) or service as: "The meaning of a good or service within the meaning of the Consumer Protection Law is that which is distributable, tradable, manufactured or leased and bears by its nature a trademark or the name of the provider."

Some jurisprudence argues that artificial intelligence can be categorized within the concept of products with its physical and moral dimensions; the physical dimension relates to the external structure of artificial intelligence, so it is a physical product, while its moral dimension is the mental thinking of the intelligent machine, which is a kind of moral product. Although artificial intelligence systems are considered dangerous products, they do not require a manufacturing defect, meaning that these systems may provide safety, yet their operation causes injury to others, especially the independence of these systems in the way they operate, which leads to the inability to categorize it within the concept of products.

Based on the above and through the previous definitions according to the Jordanian Standards and Metrology Law and the Jordanian Consumer Protection Law, the

researchers argue that artificial intelligence can be classified within the concept of products since the definition addressed the terms commodity or service. The term commodity is a double-edged sword; on one hand, it can be considered a product if we refer to the external structure when selling or buying artificial intelligence. On the other hand, it is difficult to consider it among commodities if we exclude non-material things because it is based on an intelligent automated system closer to human thinking.

Third: Granting legal personality to artificial intelligence systems under modern theory

Artificial intelligence is considered a recently emerged phenomenon and has not been defined or regulated by any legislation. It is known that legal personality is granted for specific considerations related to each personality concerning natural persons and legal entities. However, part of the jurisprudence has opposed granting legal personality to artificial intelligence systems, while another part has supported this idea, and their arguments were as follows :

First: The opinion supporting the recognition of legal personality for artificial intelligence

Some scholars argue that it is permissible to recognize legal personality for artificial intelligence systems and to bear the obligations that fall on artificial intelligence. Their arguments are as follows :

1 .The main objective of granting legal personality to artificial intelligence is to identify the responsible party to bear the burden of liability for compensating damages caused by artificial intelligence, in addition to acquiring specific rights related to artificial intelligence and protecting them from any attack or deprivation that may befall them by others.

2 .All humans can be classified as persons, but not all persons can be classified as humans. Proponents of this view argue that we can grant legal personality to intelligent virtual entities because artificial intelligence cannot be classified as either human or animal; rather, it represents a new legal category.

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3. The concept of a person is not limited to a natural person; rather, it extends to the legal personality. It is essential to distinguish between the concepts of person and human. A person is essentially a human before delving into their legal concept. From a legal perspective, a person is anyone who possesses legal personality. A natural person exists fundamentally before the agreement to grant them legal personality. To illustrate this, for example, we find that a legal entity has been granted legal personality, which indicates that the concept of a person is merely an abstract concept. The concepts of person and human are not synonymous; rather, the foundation of legal personality is not perception, will, or human attributes, but rather social value.

Secondly: The opposing view on recognizing the legal personality of artificial intelligence

1 .Natural legal personality is granted to humans regardless of their perception and understanding, so in this case, artificial intelligence would enjoy human rights such as the right to dignity, the right to citizenship, and other rights enjoyed by natural persons. However, this contradicts the Charter of Fundamental Rights and the Convention for the Protection of Human Rights and Fundamental Freedoms. Additionally, artificial intelligence cannot be assigned legal personality because a legal entity has an independent financial liability and is managed by natural persons, which does not apply to artificial intelligence. Granting legal personality to artificial intelligence would absolve producers and specialists from the responsibility that may fall on them.

2 .A set of characteristics must be present in artificial intelligence, and among the most important of these characteristics is the ability to think, analyze, and correct itself when making mistakes independently of humans, which is not conceivable in artificial intelligence .

3 .The Jordanian legislator stated in Article (289) of the Civil Code that: "The act of a mute animal is considered a tort, but the harmful act is guaranteed by the person in possession of it, whether the owner or not, if they were negligent or exceeded their limits." From this text, it becomes clear that if damage is caused by an animal, whether the defendant was aware of it or not, the burden of proof lies on the owner of the animal or the person responsible for it to demonstrate that they took all necessary measures to prevent the damage caused by the animal, meaning that there was no negligence or fault on their part that led to the occurrence of that damage .

The researchers believe that the Jordanian legislator's approach of holding the owner or the responsible person liable for damages caused by an animal indicates that the Jordanian legislator did not grant legal personality to the animal but rather made it dependent on the person responsible for that animal. If we were to apply this principle to artificial intelligence, we would find that the Jordanian legislator would follow the French legislator's stance of not granting legal personality to artificial intelligence .

4 .Recognizing the legal personality of artificial intelligence has dire consequences; it will lead to the non-responsibility of natural persons or legal entities such as the producer and the manufacturer of artificial intelligence, resulting in increased harm caused by AI systems.

5. Legal personality brings rights and obligations, which cannot be fulfilled by artificial intelligence, as it is unable to bear these rights and obligations. This is what the European Parliament decided in 2017 by not granting legal personality to artificial intelligence because it is not suitable from an ethical and legal standpoint. It operates on an automated system based on advanced intelligence, making it more difficult to deal with. Additionally, the European Parliament published a report in 2020 stating that everything related to artificial intelligence is protected by copyright, and therefore, artificial intelligence cannot be considered as having personal and legal status.

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Chapter Two

Provisions on civil liability for damages caused by artificial intelligence

It is clear that artificial intelligence, which possesses a degree of autonomy that varies depending on its type and learning mechanisms, can potentially commit an error that results in harm to others. In such cases, the question arises as to who is responsible for this error, leading to the search for the party liable for compensating the affected individual. This necessitates establishing liability for the damage caused by artificial intelligence, whether based on the principles of liability for things under the presumed fault of the custodian or on the principles of liability for defective products based on the idea of presumed fault. This involves reviewing legal scholarship on the adequacy or inadequacy of traditional civil liability rules, and then delving into the civil liability for this damage in light of modern theories, discussing the arguments of each side as follows :

Section I: Civil liability for the custody of things from the damages caused by artificial intelligence

Section II: Civil Liability for Defective Products Due to Artificial Intelligence

Section one:

Civil liability for the custody of things from the damages caused by artificial intelligence

The extent to which the rules of liability for the custody of things against damage in artificial intelligence can be applied depends on the fulfillment of the conditions for civil liability for things, such that the damage arises from the act of something under its custody. To determine the extent to which the rules of custody of things can be applied to artificial intelligence, the researchers will address this requirement through two branches: the arguments of proponents of the view that artificial intelligence is a thing that requires special care in its custody and that the custodian of artificial intelligence also meets the conditions of a traditional custodian, and the clarification of the opinion of proponents of the view that it is inconceivable to apply artificial intelligence to liability for the custody of things as follows :

One: The legal basis for the liability of the custodian of things for damages caused by artificial intelligence

Some legal scholars defined custody as: "the actual control in directing, supervising, and managing the thing," while another group defined it[1] as: "the actual authority over the thing in supervision, direction, and utilization ".

The responsibility for the custody of things in Jordanian legislation is established in Article (291) of the Civil Code, which states: "Anyone who has in their possession things that require special care to prevent damage or mechanical devices is liable for the damage caused by these things, except for what cannot be avoided, without prejudice to any specific provisions that may apply."

The conditions for the establishment of liability for things according to the previous text, jurisprudence has deduced a set of conditions that must be met for the liability of things to arise, summarized by the availability of the characteristic of a thing, meaning anything that is suitable to be the subject of financial rights, as the law only required that the thing not be outside of dealing by its nature or by law. The article also mentioned two examples of things that can give rise to the liability of their custody, which are mechanical machines and things that require special care in their guarding due to their nature, such as flammable materials and medical drugs. It also stipulated that the thing must cause damage, such that it is the originating cause of the damage or the instrument of the damage, and it also stipulated that the thing must be subject to custody intentionally and independently under actual control, not legal control, by the custody, as the custodian is the one who has the direction, supervision, and disposal of the thing, as the decision-maker in using, directing, and disposing of the thing. When control is achieved, custody is achieved.

If the custody in the aforementioned sense is available, the custodian becomes responsible for compensating the damages caused by the thing during their custody, considering that the fault is presumed on their part upon the occurrence of damage to others, and they cannot evade liability except by proving a foreign cause or force majeure, or by invoking the fault of the injured party or the fault of a third party.

[1] Abdul Razzaq Al-Sanhouri, The Mediator in Explaining the Civil Code, Contracts Stipulated in Labor Law, Dar Al-Shorouk, Cairo, 2010, p. 781. Ikram Al-Alami, Liability Arising from Animals and Things, Scientific Readings in Legal Research and Studies Journal, Morocco, Vol. (4), No. (9), 2022, p. 155.

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Two: Applicability of Liability for Guarding Things to Artificial Intelligence

Some commentators support considering the application of rules of liability for things to artificial intelligence as appropriate, while others oppose it. The researchers will present their opinions and arguments as follows:

First: The Supporting View

A segment of jurisprudence has argued for the possibility of applying the rules of guarding things to artificial intelligence technologies and systems due to the availability of the conditions for the establishment of liability for things against the latter. In defense of this position, several arguments have been presented, which we review as follows:

1. The physical applications of artificial intelligence technologies are undoubtedly considered things, as they are tangible movable property, and therefore the provisions of liability for guarding things can apply to them, given that they have a tangible physical existence. Consequently, the special nature of these applications necessitates their inclusion under the umbrella of things that require special care in guarding, in accordance with Article (291) of the Jordanian Civil Code. As for the non-physical applications of artificial intelligence, proponents of this view emphasize that the intangible applications or components of artificial intelligence, such as programs, systems, and algorithms, also fall under the umbrella of things as intangible things, and ultimately as computer programs, and therefore they are considered subjects of rights.

2. Artificial intelligence systems and technologies, whether physical or intangible, can cause harm to others. For example, artificial intelligence systems can adjust the room temperature excessively and unbearably, which may then cause the death of people in the room. Proponents of this group also cited the numerous and repeated accidents caused by self-driving cars or autonomous smart robots.

3. It is conceivable that artificial intelligence can be subject to guarding despite the independence it enjoys; because this independence is not absolute. Ultimately, the human element remains in control of operating and stopping artificial intelligence systems and technologies, and therefore remains an actual custody of artificial intelligence; consequently, proponents of this view believe that it is conceivable for a doctor to be liable

as a custodian of things for the harm that befell a patient as a result of performing an operation on them using artificial intelligence technologies.

Second: The Opposing view

1. The proponents of this view believe that the tangible physical nature of most AI systems and technologies is absent; as they are represented in the form of software and algorithms that simulate human intelligence, and are linked to the virtual world rather than the real one. They represent human intellectual creativity that falls under the umbrella of the literary aspect of intellectual property rights, and cannot be considered things in the traditional sense. The previous description is what led some to describe AI as a unique "thing-being" that moves from the concept of a familiar thing to the concept of an unfamiliar thing.

2. AI systems enjoy independence, which contradicts the idea of AI technologies being subject to custody and the ability to make unexpected decisions for the guardian; given that most of these systems and AI technologies possess a high degree of independence and freedom in decision-making. Consequently, the custody of the physical and moral AI systems and technologies does not have actual custody over those systems and technologies, because the idea of AI independence makes it far removed from the control of the manufacturer, programmer, developer, user, and owner; and therefore, any of them has the right to deny responsibility for themselves; based on the fact that they are not the one who disposes of and controls the actions of the AI.

3. The custody that necessitates responsibility according to the text of Article (291) of the Jordanian Civil Code is only realized by the actual control of the natural or legal person over the thing in terms of use, direction, and supervision for their own benefit.

4. The characteristic of independence and unpredictability allows the custodian to be absolved from the rules of custody, considering them as force majeure or a foreign cause that led some jurists to call for the necessity of freeing the AI custody from thing-based responsibility, considering that the independence of AI and the ability to make unexpected decisions can be interpreted as force majeure, negating the guardian's responsibility for the actions and behaviors of the AI; given that some actions of independent intelligence are issued unexpectedly, and in an unavoidable manner, and therefore the causal relationship

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between the error made by the AI and the damage inflicted on others is negated. From the moment the AI starts operating, it becomes independent of all those involved in its manufacture and those who benefit from its use, which necessitates holding it solely responsible. As for independence and unpredictability as a foreign cause that exempts from responsibility, the AI custodian can evade responsibility if they prove that the damage is due to a defect in the design or update in the AI application and not due to custody, supported by what the Jordanian Court of Cassation has settled on by saying that thing-based responsibility is based on a conclusive legal presumption that does not accept proof to the contrary, which is the assumption of the guardian's error, and therefore the guardian's responsibility arises when an error occurs from the thing under their custody, and they cannot evade responsibility except by providing evidence that the error resulting from the thing arose from a foreign cause for which they had no hand, and provided that it was unpredictable and unavoidable, and the matter of assessing the extent of predictability or avoidance is subject to the objective standard without regard to the personality or circumstances of the guardian.

5. The difficulty of actually identifying the custodian responsible for the error, especially for the non-material aspects of AI, due to the overlap of actors and contributors in the physical and moral control of AI. If it is impossible to identify the guardian, it will consequently be impossible to prove the error, which will result in the non-establishment of responsibility. Since the custodian is the one who possesses actual authority over the thing, this description does not apply to the AI guardian, which makes the traditional concept of custody insufficient to include the custody of independent AI.

The researchers believe that through studying the idea of applying thing custody to AI technologies, it becomes clear that it is difficult to apply thing-based responsibility, and It is necessary to explore alternative legal frameworks that more appropriately address liability for AI damages.

Section II

Liability for Defective Products for AI Damages

The non-application of strict civil liability to AI systems and technologies as previously discussed has led some legal scholars to seek another basis, which is the possibility of applying the rules of liability for defective products. In this regard, the researchers will review the basis of liability and present the supporting and opposing legal opinions on applying this liability to AI systems and technologies as follows:

One: Basis of Liability for Defective Products for AI Damages

Defective products are defined as those products that lack the desired safety due to containing a defect in manufacturing, production, transportation, or storage, regardless of the person who caused the defect, whether it was the manufacturer, transporter, or others.

Initially, it must be noted that a dangerous product is not necessarily a defective product. A dangerous product is a product that is inherently dangerous by its nature and description, such as chemical substances, or product that is not inherently dangerous but becomes so due to certain characteristics that made it a dangerous product, while a defective product is a product that is determined based on the harmful effects that arise based on the circumstances surrounding the product, especially its presentation and use.

The Jordanian legislator regulated liability for defective products in Articles (4, 6) of the Consumer Protection Law. Article (4) stipulated the obligations of the supplier, in addition to Article (6/a) which stipulated that a commodity or service is considered defective in any of the following cases: "1- Lack of safety requirements for normal or expected use. 2- Non-conformity with applicable mandatory technical rules. 3- Non-conformity with advertised characteristics or failure to achieve the results declared to the consumer. 4- Failure to achieve the performance or quality levels declared for the commodity or service, or the existence of a defect or deficiency in it, or its unsuitability for use according to what it was prepared for, for a period commensurate with its nature." The provisions of the Jordanian Standards and Metrology Law in Articles (10, 11, 12) also included protection from and monitoring of damages from defective products. Accordingly, the manufacturer is liable for any damage it causes or inflicts if it is proven that the damage arose due to a defect in the product attributable to its design, manufacture, or assembly.

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From the foregoing, we find that the Jordanian legislator required two conditions for liability for defective products; the first: the description of the product or commodity, which Article (2) of the Jordanian Consumer Protection Law defined as: "Any movable property obtained by the consumer from the supplier, even if attached to immovable property, including intangible forces such as electricity," and the second is the existence of a defect in the product, which was defined previously.

Two: Applicability of Liability for Defective Products to Artificial Intelligence Systems

Legal scholars are divided into two teams regarding the application of liability for defective products to artificial intelligence systems and technologies, and each team justified its arguments as follows:

First: The Supporting View

1. The possibility of applying artificial intelligence systems and applications in light of the texts of laws that defined the product, such as the text of Article (2) of the Jordanian Consumer Protection Law, where supporters of this approach were guided to apply the rules of liability for defective products, from which two things can be inferred: The first is that physical artificial intelligence applications can be viewed as products subject to the provisions of the previous texts; considering that they are ultimately tangible physical movables, and the second is that "intangible" artificial intelligence applications and systems, such as programs and algorithms, are subject to the description of a product, despite the absence of a tangible physical nature; because the texts that defined the product, whether the text that used the word commodity or service or used the word movable, were absolute and without any distinction between a physical product and an intangible product.

2. That the errors and damages caused by artificial intelligence systems and technologies are often due to manufacturing defects, and therefore the provisions of liability for defective products are the most compatible provisions with the nature of artificial intelligence as a defective product, regardless of its physical or digital nature, as long as the producing company or the programmer retains control over updating and developing the systems, and thus their responsibility for all damages that befall others is realized, as a result of the actions and behaviors of the defective artificial intelligence, whether the defect

was in its physical or intangible structure, or as a result of negligence on the part of the producing company, and whether the defect was before or after the artificial intelligence was put on the market.

3. When there are multiple producers in the manufacture of artificial intelligence systems, it is possible to distribute the liability for the defective artificial intelligence among those involved in the manufacture and development of artificial intelligence, each according to their contribution to the error and according to the degree of independence enjoyed by the artificial intelligence, with the necessity of the liability being proportional to the degree of control of the producer, programmer, and developer, such that the greater the degree of independence of the intelligence, the less the responsibility of the producer, programmer, and developer, and vice versa.

However, the previous justifications were not satisfactory to another group of legal scholars, who emphasized their complete rejection of artificial intelligence systems and technologies being subject to the rules of liability for defective products.

Second: The opposing view

1. That the concept of a product applies to the legal description of a thing, and since artificial intelligence falls outside the concept of a thing, due to the predominance of its intangible nature and its ability to act with a degree of independence, it is inconceivable to consider it a product to which the provisions of liability for defective products apply, and that these systems are closer to services than to products, which leads to the belief that the definition of a commodity contained in the text of Article (2) of the Jordanian Consumer Protection Law does not apply in any way to the concept of artificial intelligence, as most artificial intelligence systems are of an intangible nature, even the physical applications of which rely essentially on programs and algorithms more than on the physical external structure.

2. That the majority of errors are within the limits of the machine, and have not exceeded the limits of humans, and that the independent actions, behaviors, and decisions issued by artificial intelligence, even if they result in harm to others, are not all in reality defects, but rather represent a main component of artificial intelligence, enabling it to perform the tasks programmed to achieve, or to make decisions.

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3. For liability for defective products to arise, the injured party must prove the defect in the intelligence, which is impossible in many cases due to the difficulty of proving the causal relationship between the error made by the intelligence and the harm that befell others, due to the complexity of artificial intelligence systems and technologies, as well as the difficulty of drawing the dividing lines between the damages that befell others due to artificial intelligence itself through its ability to self-learn and its ability to make decisions and act independently, and the damages resulting from a defect in the manufacturing or programming of artificial intelligence.

4. The inability to identify the person responsible for the defect causing the damage in the event of multiple persons contributing to the manufacture, programming, and development of artificial intelligence, which may result in emptying the liability for defective products of its content, rendering the liability provision meaningless and thus the impossibility of the injured party obtaining compensation due to the ease with which the artificial intelligence product is absolved of responsibility.

The researchers, after reviewing the possibility of applying liability for artificial intelligence damages according to the rules of liability for things and the rules of liability for defective products, found it difficult to accept them as bases capable of applying these rules for artificial intelligence damages, as the application of these rules will result in the person responsible for artificial intelligence systems escaping the obligation to pay compensation to the injured party, due to the difficulty or impossibility of proving the error and the damage, or the impossibility of recourse against the person who caused that damage, and therefore it is necessary to enact legislation that provides solutions capable of holding artificial intelligence systems and technologies of a special nature accountable.

Conclusion

This study employed a descriptive-analytical method to explore, and after explanation and detail, and an attempt to analyze the specific components of the topic, it was necessary in the end to present the most important results reached, and the most important recommendations presented to address the study's problems, which we will list as follows:

Results

1. Artificial intelligence systems and technologies differ from some similar systems in terms of definition, performance or function, physical existence, goal, and control criterion.

2. The virtual personality of artificial intelligence differs from the legal personality. The virtual personality is a personality that precedes the legal personality. It is represented by the existence of artificial intelligence systems and technologies, and it must be recognized by states and legislation. As for the legal personality, it is represented by the possibility of giving artificial intelligence systems and technologies legal personality.

3. Artificial intelligence can be considered, according to the Standards and Metrology Law and the Jordanian Consumer Protection Law, within products, and the legal standards upon which civil liability for artificial intelligence applications is based are the civil liability for defects in products and services. Artificial intelligence can also be considered among things according to the Civil Code according to the text of Article (291) of the Jordanian Civil Code in terms of its programming and mind, i.e., intangible things. A special custody for artificial intelligence is determined, and this custody is among the persons responsible for designing and manufacturing it, and it is represented by civil liability for the harmful act of things under custody that require special care to prevent their harm.

Recommendations

1. Issue legislation requiring all users of AI systems and technologies to register them with competent authorities to determine ownership. It should also include provisions for compensating damages resulting from AI systems and technologies, either by establishing an AI damage fund or issuing a special mandatory insurance system for AI applications. This would compensate the injured party for any harm caused by AI, with minimum and maximum limits for compensation.

2. Given the inconsistency of the concept of actual custody in civil liability for things requiring special care to prevent harm, with all AI applications, we propose amending the text of Article (291) of the Jordanian Civil Code to read as follows: "Anyone who has under their control things that require special care to prevent harm, or mechanical machines, or those with artificial intelligence" shall be liable for the damage caused by these things, except for what cannot be avoided, without prejudice to any special provisions contained therein.

3. Oblige manufacturing companies, for AI systems and technologies with a high degree of autonomy, to form an internal unit to monitor the nature of the movement of the autonomous AI application and its accuracy in performing the tasks assigned to it. This is to ensure the manufacturer's liability for damages arising from highly autonomous AI systems, within a temporary period until the ethical nature of interaction between humans and AI applications becomes clear.

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Finally, we hope that we have done justice to this topic. If we have succeeded, it is by the grace and blessing of God. And if we have fallen short, we ask for understanding, for we are only human — prone to mistakes and limited in our ability to achieve perfection, which belongs to God alone. Thank you for your time and consideration.

Author Contribution: All authors contributed equally to the main contributor to this paper. All authors read and approved the final paper.

Funding: This research received no external funding"

Conflicts of Interest: "The authors declare no conflict of interest."

3. References

[1] Al- Ahmed Barak, Towards organizing the rules of liability for artificial intelligence technologies, the problem of the relationship between man and the intelligent machine criminally, civilly and internationally, first edition, Dar Wael for Publishing and Distribution, Amman, Jordan, 2022.

[2] Ramadan Abu Al-Saud, Sources of Obligation, New University House, Alexandria, 2011.

[3] Abdul Razzaq Al-Sanhouri, Al-Wasit in Explaining Civil Law, The Theory of Obligation in General, Sources of Obligation, Part I, Dar Al-Shorouk, Cairo, Egypt, 2010.

[4] Abdul Razzaq Al-Sanhouri, Al-Wasit in Explaining Civil Law, Contracts from the Labor Law, Part IV, Dar Al-Shorouk, Cairo, Egypt, 2010.

[5] Othman Al-Takroury, Al-Wajeez in Principles of Law and Commercial Law, second edition, Palestine, 2017.

[6] Kandil Said, Mechanisms for compensating environmental damages, a study in the light of legal systems and international agreements, New University House, Alexandria, Egypt, 2004.

[7] Mohammed Al-Rahu, The Idea of Guardianship in Civil Liability for Inanimate Objects: A Comparative Study, First Edition, Dar Al-Thaqafa for Publishing and Distribution, Amman, Jordan, 2001.

[8] Mohamed Hussein Mansour, The General Theory of Obligation Sources of Obligation, New University House, 2006.

[9] Ibrahim Al-Desouki Abu Al-Lail, Smart Contracts and Artificial Intelligence and their role in automating contracts and legal actions, Law Journal, Kuwait University, Volume (44), Issue (4), 2020.

[10] Ahmed Al-Khouli, Civil liability resulting from the unlawful use of artificial intelligence applications "Deepfake" as a model, Journal of Jurisprudential and Legal Research, Issue (36), Saudi Arabia, 2021.

[11] Ahmed Othman, The implications of artificial intelligence on civil law, a comparative study, Journal of Legal and Economic Research, Issue (76), 2021.

[12] Ikram Alami, Liability arising from animals and objects, Journal of Scientific Readings in Legal Research and Studies, Morocco, Volume (4), Issue (9), 2022.

[13] Hussam Abis Odeh, Al-Karrar Habib, Civil liability for damages caused by robots, a comparative analytical study, Journal of Social and Legal Sciences, Imam Nazim College, Volume (6), 2019.

[14] Aisha Shafqa, Legal protection of works arising from artificial intelligence programs, Master's thesis, College of Law, United Arab Emirates University, 2021.

[15] Abdul Raziq Wahba Sayed Ahmed, Civil Liability for Artificial Intelligence Damages: An Analytical Study, Journal of Generation of In-depth Legal Research, Issue (43), 2020.

[16] Emad Abdulrahman Al-Dahyat, Towards a legal regulation of artificial intelligence in our lives, the issue of the relationship between humans and machines, Al-Ijtihad Journal of Legal and Economic Studies, Volume (8), Issue (5), 2019.

[17] Ammar Al-Fatlawi, Ali Al-Mashhadi, Civil Liability for Complex Artificial Intelligence Technology, A Comparative Study, Drop Al-Maarifa for Publishing and Distribution, Alexandria, Egypt, 2022.

[18] Amr Taha Badawi Mohamed, The Legal System of Intelligent Robots with Artificial Intelligence, Journal of Legal and Economic Studies, Faculty of Law, Sadat City University, Volume (7) 2021.

[19] Fatima Nassakh, The Legal Personality of the New Object "Virtual Person and Robot", Professor Research Journal for Legal and Political Studies, Algeria, Issue (1), 2020.

[20] Qutaiba Mazen Abdelmajid, The use of artificial intelligence in electrical engineering applications "A comparative study", Master's thesis Arab Academy, Denmark, 2009.

[21] Samia Qamoura, Bai Mohamed, Hayzia Karrouche, Artificial Intelligence between reality and hope, "A technical and field study", International Forum entitled Artificial Intelligence A New Challenge for Law, University of Algiers, Algeria, 2020.

[22] Christian Youssef, Civil Liability for Artificial Intelligence, Master's Thesis, Faculty of Law and Administrative Political Science, Lebanese University, Lebanon, 2020.

[23] Mohamed Al-Saeed Al-Mashad, Toward a comprehensive legal framework for civil liability from the damages of unattended artificial intelligence systems, Journal of Legal and Economic Research, Faculty of Law, Mansoura University, Special Issue, 2021.

[24] - Mohamed Abdul Rahim Bakhit Abdul Rahim, The Psychology of Artificial Intelligence, Egyptian Journal of Psychological Studies, Volume (10), Issue (26), 2000.

[25] - Mohamed Fath Al-Bab, The legal nature of civil liability for robot damage, a comparative analytical study, Journal of Legal and Economic Research, Mansoura University, special issue for the 20th Annual International Conference, 2021.

[26] - Samia Lakrab, The desirability of recognizing the legal personality of intelligent robots, Journal of Law and Human Sciences, Ziane Achour University, Djelfa, Volume (16), Issue (1), 2023.

[27] - Mohamed Irfan Al-Khatib, The Legal Status of Human Beings, Personality and Liability, A Comparative Forensic Study Reading in the 2017 European Rules of Civil Law for Human Beings, Kuwait International Law School Journal, Year Six, Issue (4), 2018.

[28] - Mohammed Irfan Al-Khatib, Artificial Intelligence and the Law, A Comparative Critical Study in the French and Qatari Civil Legislation in Light of the European Rules in the Civil Code of Humanity of 2017 and the European Industrial Policy for Artificial Intelligence and Humanities of 2019, Journal of Legal Studies, Faculty of Law and Political Science, Beirut Arab University, 2020.

[29] - Mohammed Irfan Al-Khatib, Civil Liability and Artificial Intelligence, the possibility of accountability, an in-depth analytical study of the rules of civil liability in the French Civil Code, Kuwait International Law School Journal, Doha, Qatar, Issue (1), 2020

[30] - Mustafa Issa, The adequacy of the general rules of civil liability in compensating artificial intelligence damages, Damietta Law Journal for Legal and Economic Studies, Issue (5), 2022.

[31] - Mustafa Muhammad Abdulkarim, the responsibility of the guardian of machines driven by artificial intelligence and what the Egyptian legislation should be, Journal of Legal and Economic Research, Faculty of Law, Mansoura University, Special Issue, 2021.

[32] - Maamar Tarya, Robotics and Artificial Intelligence Damages, A New Challenge to the Current Civil Liability Law, Research presented at the International Forum, University of Algiers, Special Issue, 2018.

Al-Biruni Journal of Humanities and Social Sciences
https://al-biruni-journal.jo
Vol. 01, No. 12, 2023, pp. 1-8
ISSN 3104-8900

[33] - Maha Ramadan Battikh, Civil Liability for the Damages of Artificial Intelligence Systems, a Comparative Analytical Study, Egyptian Legal Journal, Volume (9), Issue (5), 2021.

[34] - Maha Mohsen Ali Al-Sakka, Liability for Artificial Intelligence Errors in the Securities Market, Journal of Legal and Economic Research, Faculty of Law, Menoufia University, Issue (51), 2020.

[35] - Nariman Bourgheda, Liability for the act of smart electronic systems, Annals, University of Algiers, Issue (31), Part (1), 2017.

[36] - Nila Ali Almheiri, Civil Liability for Robot Torts, An Analytical Study, Master's Thesis, College of Law, United Arab Emirates University, 2020.

[37] - Haitham Issa, Obligation to interpret before contracting through artificial intelligence systems, Arab Renaissance House for Publishing and Distribution, Cairo, Egypt, 2019.

[38] Laws

[39] - Jordanian Civil Code No. (43) of 1976, as amended.

[40] - Jordanian Consumer Protection Law No. (7) of 2017, as amended.

[41] - Jordanian Standards and Metrology Law No. (22) of 2000, as amended.

[42] - Egyptian Civil Code No. (131) of 1948 as amended.

[43] - The new French Civil Code of 2016.

[44] Foreign References

[45] - Verma, M(2017). Artificial intelligence and its scope in different areas with special reference to 1 the field of education, Artificial intelligence, 3(1), p.6.1

[46] - Cedrie Coulon, Du robot en droit en droit de la responsibility civil: a propose des dommages causes par les choes intelligents, Resp-civ, 2016, p.17.

[47] - rapport du groupe de trava, la reforme du droit français de la responsabilite civile et les relations economiques, 2019, P.108

[48] http://www.justice.gouv.fr/art_pix/Rapport_CA_PARIS_reforme_responsabilite_civile

[49] - G.Courtois, Robots intelligents ET responsabilité; quels régimes, quelles perspectives? Dalloze IP/IT, juin 2016, n 6, P.287.

[50] - Open Letter to the European Commission: Artificial Intelligence and Robotics (2018) para 2(b).cf https://www.politico.eu/wp-content/uploads/2018/04/RoboticsOpenLetter.pdf