
Artificial Intelligence and the Modern Foundations of Civil Liability

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Abstract:

The emergence of advanced artificial intelligence (AI) has created significant challenges for users, particularly in relation to the difficulties faced by a new category of injured parties in seeking compensation for the harm they have suffered. Traditional liability systems have struggled to effectively address these challenges, resulting in a lack of compensation for this group. This situation has a detrimental effect on social stability and requires legal approaches to address the problem. One important approach is the recognition of AI as a legal person, thereby making it legally accountable and obliging it to compensate for the harm it causes. However, this recognition poses significant challenges.

Keywords: Artificial Intelligence, Civil Liability, Robots, Legal Personhood.

Introduction:

After several decades of human intellectual progress, especially in the technological field, the emergence of self-governing mechanisms and modern technological means has become evident. Intelligent machines and robots in various forms, such as self-driving cars, drones, electronic contract systems, agents, electronic entities and robots, have permeated various aspects of industrial, medical, educational and even military domains. Gradually, the reliance on humans to manage these artificial minds has diminished. As a result, legislation has become fragmented in terms of the extent to which existing rules regulate the use of various industrial applications, considering that they form the core of social management in dealing with the damage that may be caused as a result of the actions of these intelligent machines, commonly known as robots or artificial minds.

Moreover, the emergence of intelligent machines as a result of the enormous revolution in modern technology, in all its present and future forms, poses real and practical challenges to the civil liability system. The vastness and novelty of these challenges have often rendered the liability system incapable of adequately compensating for damage caused by artificial intelligence in all its forms, including damage resulting from errors made by intelligent agents in the course of contracting. As a result, some legal scholars have advocated the idea of granting legal personality to artificial intelligence in order to remedy the deficiencies and shortcomings of current civil law.

Importance of the study:

The importance of studying this topic lies in keeping pace with the global trend of using artificial intelligence applications in various fields. Surgical procedures, banking operations, smart contracts and the whole field of smart industries are increasingly relying on artificial intelligence. This underscores the importance of establishing legal and ethical regulations that outline how these intelligent applications should be used to mitigate the risks associated with their widespread import, use and manufacture without a legal framework.

In addition, it is crucial to establish an effective system for compensating damages that may arise from the widespread use of robots and intelligent machines, especially in cases where machines commit specific errors without human intervention or where evidence is beyond human control. Therefore, the importance of this study becomes evident in determining who is responsible for damages caused by artificial intelligence and in addressing the errors committed by these artificial entities, which may result in financial and physical harm to individuals interacting with such intelligent systems.

Problem Statement:

The problem of the study lies in the lack of sufficient legal regulation in the Algerian legal system regarding artificial intelligence, especially considering the diversity of its applications and the different legal nature of these applications. This is particularly relevant when it comes to civil liability that may arise from the damage caused by intelligent systems and machines. There are also challenges in determining who is responsible. The main problematic question is: what is artificial intelligence and what is its legal significance?

Methodology of the study:

In order to address the above problem, this study adopts an analytical and descriptive methodology. It involves an analytical study of the legal texts

enacted by the Algerian legislature in order to assess their ability to address the subject of the study. It also provides a clear description of various definitions and characteristics, as well as the determination of the legal nature of artificial intelligence.

Study Plan:

First Axis: The Nature of Artificial Intelligence.

Second Axis: Modern Foundations of Artificial Intelligence Liability.

First Axis: What is Artificial Intelligence?

In order to familiarise ourselves with the concept of Artificial Intelligence as a dynamic and evolving field of study, it is essential to examine the position of Algerian national legislation regarding the definition of Artificial Intelligence. This includes studying the position of comparative legislation as well as the jurisprudential definition of artificial intelligence and its various components, characteristics and types. This research aims to establish an appropriate legal framework in which artificial intelligence can be recognised as a modern and innovative science.

First, an introduction to artificial intelligence:

1. Legal definition of AI:

In terms of civil legislation, there are differences in how they regulate artificial intelligence, either by providing a comprehensive definition of the term or not. This divergence can be attributed to the unique nature of artificial intelligence and the technological advances it has achieved. These factors have necessitated the need for specific legislation in some countries.

As far as Algerian national legislation is concerned, it does not contain a definition of artificial intelligence. This may be due to the fact that Algeria is not technologically advanced in the field of smart industries and artificial intelligence. However, from a scientific point of view, AI has been defined and regulated according to different domains. For example, in the field of education, Article 65 of the recently adopted Algerian Constitution for the year 2020 guarantees the right to education and the state's continuous efforts to improve its quality. This indicates the State's commitment to providing free education and

training and to ensuring the necessary resources in accordance with internationally recognised quality standards¹.

At the level of higher education and scientific research, the Centre for the Development of Advanced Technologies (CDTA) was established as a public institution of a scientific and technological nature. It was established by Executive Decree 03/457 of 7 Shawwal 1424, corresponding to 1 December 2003, under the supervision of the Minister of Higher Education and Scientific Research. Its Board of Directors is composed of representatives of the Minister of Education and Vocational Training, as well as representatives of the postal sector, information and communication technologies, the industrial sector and the telecommunications sector.

From a legal point of view, the legislator has provided for the regulation of this matter. For example, with regard to the Penal Code, Law 04-15 amended and supplemented Decree 66-156, which contains the Penal Code. It includes a section entitled “Tampering with automatic data processing systems”, consisting of eight articles from article 394 bis to article 394 bis 7.

In addition, Law 18/07 on the protection of natural persons in the processing of personal data was enacted to fill the legal gap and to keep up with technological advances².

Law No. 09/04 was also enacted to fill the legal vacuum regarding the specific rules for the control of crimes related to information and communication technologies³.

The legislator has also regulated this in the Code of Criminal Procedure by extending the local jurisdiction of the public prosecutor in the field of electronic crimes according to Article 37/2 of the Code of Criminal Procedure. This applies to offences related to drugs, transnational organised crime, offences against automatic data processing systems, money laundering, terrorism, offences related to currency legislation, corruption and smuggling⁴.

In contrast, in technologically advanced countries, there are official definitions of artificial intelligence. For example, the French government officially launched its Artificial Intelligence Strategy in 2017. As part of this strategy, the

¹ - Asma Belilta, “Legal and Regulatory Dedication of Artificial Intelligence”, International Journal of Artificial Intelligence in Education and Training, Arab Forum for Technological and Human Development, Issue 1, 2022.

² - Law No. 18-07 of 10 June 2018 on the protection of natural persons with regard to the processing of personal data, Official Gazette, Issue 34.

³ - This law contains 19 articles divided into 6 chapters derived from international conventions such as the 2001 Budapest Convention on Cybercrime.

⁴ - Abdullah Ouhaibiya, Explanation of the Code of Criminal Procedure, Algeria, Dar Huma, 2018, p. 353.

“National Advisory Committee on Ethics in France” was created, which defined artificial intelligence as “a combination of information programmes designed to perform tasks that humans can currently perform more satisfactorily because they require high-level cognitive processes such as perceptual learning, memory organisation, critical thinking, and therefore require cognitive abilities that allow them to achieve goals independently”¹.

One of the advantages of this definition is that it links AI to three closely related human abilities: perceptual learning, memory organisation and critical thinking. This link goes beyond the nature of the tasks themselves. Traditional evidence differs from intelligent evidence in its ability to learn from humans and perform tasks like them. Therefore, the definition is limited to the present, without considering the possible future evolution of intelligence. This is a drawback because artificial intelligence is characterised by its unlimited potential for development over time.

As for the European Union, in 2019 the European Parliament issued a resolution recommending a set of legislative and non-legislative recommendations to the European Commission in the field of robotics and artificial intelligence. According to the resolution, “artificial intelligence refers to a set of human-created systems that operate within a complex goal of the physical or digital world, perceive their environment, process collected data in their artificial minds, whether organised or unorganised, and reason logically based on the knowledge derived from this data to determine the best course of action according to predefined criteria to achieve the specified goal”².

2. The terminological definition of artificial intelligence :

Artificial Intelligence (AI) is a compound term consisting of two words: “intelligence” and “artificial”. Several definitions and interpretations have been presented for each of these terms, including:

- “Intelligence created or simulated by humans in machines or computers, i.e. intelligence originating from humans and then imparted to machines or computers. It is therefore a field of science that aims to make machines (computer systems) perform tasks that require intelligence”³.

¹ - Ayman Mohamed Al-Asyouti, “Legal Aspects of Artificial Intelligence”, 1st edition, 2020, Dar Misr for Publishing and Distribution, p. 20.

² - P. Stone et al, “Artificial Intelligence and Life in 2030”, A Hundred-Year Study on Artificial Intelligence, 2016, p. 15.

³ - Yassin Saad Ghalib, Fundamentals of Administrative Information Systems and Information Technologies, Dar Al-Manahij for Publishing and Distribution, Jordan, 2012, p. 12.

- “Artificial intelligence is the use of computers or robots controlled by intelligent programs to perform precise and complex tasks, using multiple layers of information including algorithms, pattern recognition, rules, deep learning and cognitive computing to understand data”¹ .

- “A branch of computer science that studies the application of technology based on the simulation of human intelligence”²”.

Second: Components of Artificial Intelligence:

Artificial Intelligence (AI) is considered an important field in the present era due to its important role in various fields. This is due to its characteristics, achievements and the diversity of its applications. Its software efficiency allows it to perform tasks more efficiently than humans in some cases. This will be discussed in the following section.

1. Characteristics and Aims of Artificial Intelligence:

1.1. Characteristics:

- Symbolic representation:

Most intelligent applications use symbols to represent available information. Artificial Intelligence primarily uses non-numerical symbols, which contradicts the prevailing idea that computers can only process numbers and understand binary choices like humans³ .

- Knowledge acquisition and representation:

In order for a computer or robot to solve a given problem, it must first understand it. Therefore, an important aspect of artificial intelligence programs and systems is the use of symbolic representation to express information and the adoption of empirical search methods to find solutions. These programs and systems must have a large knowledge base that links cases, data, or desired outcomes.

- Learnability:

¹ - Yahya Ibrahim Dahshan, “Criminal Liability for Artificial Intelligence Crimes”, Journal of Sharia and Law, College of Sharia and Law, United Arab Emirates University, Issue 82, April 2020, p. 16.

² - Imad Abdel Rahim Aldahiat, “Towards Regulating Artificial Intelligence Law in Our Lives: The Problem of the Relationship between Humans and Evidence”, Al-Ijtihad Journal of Legal and Economic Studies, College of Law, United Arab Emirates University, Volume 8, Issue 5, 2019, p. 16.

³ - Saleh al-Din Othman Mahdi, “Using Good Governance Systems as a Gateway to Enhance the Performance of External Auditors”, Doctoral Thesis in Business Administration, Arab University of Amman, Amman, Jordan, 2012, p. 18.

An important feature of intelligent systems is their ability to learn from previous experience and practice. They can improve their performance by taking into account past mistakes. This learnability is associated with the ability to generalise information, infer similar cases, make selective choices, and ignore irrelevant information. In addition, the ability of AI software and intelligent systems to retain information and objects without forgetting them in the future is crucial. This distinguishes them significantly from the human mind, which by its very nature is prone to forgetfulness.

- The use of optimistic trial and error:

AI programs and systems tackle problems that have no known general solution. This means that these intelligent systems do not follow a sequential set of steps leading to a definitive and effective solution. Instead, they choose the most appropriate method to solve the task at hand, while retaining the ability to change their approach if it becomes apparent that the initial path does not lead to a quick or desired solution. The focus is on satisfactory solutions rather than absolute or precise solutions¹.

- Dealing with incomplete information:

AI programs have the ability to find solutions even when presented with incomplete and insufficient information at the time the solution is needed. The consequences of incomplete information may lead to less realistic or less competent reasoning. On the other hand, the inferences made may be correct, and the lack of necessary data may sometimes lead to an inaccurate or less efficient result.

- Dealing with conflicting or repetitive data:

AI programs excel at handling conflicting or repetitive data. This includes dealing with contradictory data that may be flawed with errors. In addition, AI systems and mechanisms can perform routine tasks that repeatedly require the same working mechanism. Furthermore, these systems can be used to perform tasks that may pose a risk to human life².

The ability of artificial intelligence to simulate human behaviour is evident in its ability to mimic human behaviour:

¹ - Mahmoud Abu Al-Qasim al-Ratimi, "Applications of Artificial Intelligence", Libyan Association for Artificial Intelligence, University of the Seventh of April, Zawiyah, Libya, p. 7.

² - Alaa Abdel Razzaq al-Sahli, "Information Systems and Artificial Intelligence", 1st edition, Dar Al-Manahij for Publishing and Distribution, Amman, Jordan, 1999, p. 37.

The ultimate goal of understanding AI is to use it to process information and gain an understanding of human intelligence, such as understanding human language and behaviour, since humans are the source of intelligence from which evidence or intelligent systems draw.

- The ability to process large amounts of data without error:

Artificial intelligence machines perform their tasks continuously without getting tired or bored. They maintain a consistent production capacity regardless of time or working conditions. AI systems can handle and process massive amounts of data with accuracy, and store and process it efficiently¹.

1.2 Goals:

The field of artificial intelligence aims to understand the nature of human intelligence through computer programs capable of simulating human behaviour, known as intelligence. A computer program has the ability to solve a problem and make decisions by referring to various reasoning processes it has acquired. The main goals of artificial intelligence include:

- Making devices smarter, which is the primary goal.
- Understanding the nature of intelligence.
- Making devices and software capable of autonomous behaviour and increased utility.
- The ability to adapt positions and texts by solving problems related to design, planning and diagnosis.
- Enabling intelligent machines to process information and solve problems in a human-like manner, executing multiple commands simultaneously, similar to human processing.
- A better understanding of how human intelligence works through simulations of the human brain².

2. Types of artificial intelligence:

¹ - Charlotte Troi, "Choice in the Face of Artificial Intelligence", Master's thesis, University of Reunion, France, 2017, p. 16.

² - Abu Bakr Khalid, "Applications of Artificial Intelligence as a Modern Trend to Enhance the Competitiveness of Business Organizations", 1st edition, Arab Democratic Center for Strategic and Economic Studies, Berlin, Germany, 2019, p. 14.

2.1 Narrow Artificial Intelligence (ANI):

This type of AI allows machines to understand, follow, and execute specific commands within a limited scope. Examples of ANI include self-driving cars, drones, facial recognition software, chess playing programs, and more. What distinguishes ANI is its limited domain, as it is programmed to perform specific tasks and remains within the confines of those tasks with controllability.

2.2 Superintelligent Artificial Intelligence (AI):

There is also the concept of superintelligent artificial intelligence, which surpasses human intelligence and is able to perform tasks better than a human specialist in a particular field. For example, an expert surgeon or medical specialist. In this type of AI, the system has the ability to develop and improve its cognitive abilities through its own experimentation, thanks to specialised learning techniques. It enables the AI to learn, plan, communicate, judge and make decisions quickly and independently. This type of AI is still under development..

The second axis: Modern foundations for the responsibility of artificial intelligence:

The theory of ‘legal personhood’ is one of the notable conclusions reached by the European Union’s Committee on Legal Affairs since 2015 with regard to civil liability, by establishing specific rules for robots in 2017. This was in response to the concessions and questions raised regarding the responsibility for the operation of artificial intelligence robots. As a result, the Legal Affairs Committee issued specific rules for robots, known as the Civil Law of Robots¹.

And this has led legal experts in the European Union to adopt the concept of “legal personhood” or “robot’s peer” in the terminology of French jurisprudence, making it responsible for damage caused by intelligent industrial applications that may result from the negligence of intelligent robots in the performance of their tasks. This will be addressed in this axis by updating the legal nature of artificial intelligence, the concept of “legal personhood” and the basis of responsibility on which it is built:

First, the legal nature of “legal personhood”:

The concept of “legal personhood” adopted by the European legislator is based on the idea that robots are not mere objects or things, nor are they irrational beings. This is evidenced by the European legislator’s description of the human

¹ - The European parliament , civil larvrules on robotics, p8 (2017) 0051, 16 february 2017.

responsible for the robots as a “peer” and not as a guardian or observer, which distinguishes them from other inanimate objects. Therefore, the responsibility of the “legal person” implies the imposition of liability arising from the operation of artificial intelligence robots on a group of legal persons according to their degree of fault in the use or manufacture of the robots, as well as the extent of their negative actions in preventing unforeseen damage caused by the robots, without assuming fault on their part. It also means not considering robots and intelligent systems as mere material objects¹.

Thus, the concept of “legal personality” introduced by the European Union does not correspond to the theory of the guardianship of mechanical machines and inanimate objects or objects requiring special care, since the description of the “peer” is very different from that of the guardian of inanimate objects.

The question therefore arises: Can responsibility for a robot be attributed to its human peer, and would this be a violation of its capacity?

Jurisprudence has answered this question by stating that what the European Union has concluded about the responsibility of the robot’s peer does not affect the robot’s capacity. This is evidenced by the fact that the European legislator uses the term “peer” rather than “guardian” or “custodian” of an incapacitated person. Even if a legal person lacks or has limited capacity, the law recognises and confers rights and obligations on it. Similarly, the European legislator has not addressed the capacity of robots, but has given them a specific legal status².

It is important to address the question of whether an intelligent robot can be considered legally subordinate to a human being?

Referring to civil legislation such as the Algerian, Egyptian and French Civil Codes, there is no definitive answer to this question, as it is still at the stage of traditional evidence. In civil legislation, a subordinate is a legal person, while artificial intelligence robots have not yet been recognised as full personalities. However, the answer can be found in European law, which does not consider artificial intelligence robots to be legally subordinate to humans, even though they are created to serve humans. The superior has control over the full legal capacity of the subordinate. In addition, the superior has the right to refer to the subordinate by virtue of the relationship of subordination between them, and it is not a relationship of representation or agency in the assumption of responsibility. The European legislator imposes civil liability on the human peer rather than on the robot, not because of any fault on the part of intelligent robots

¹ - Ayman al-Suyuti, “Legal Aspects of Artificial Intelligence Application”, 1st edition, Dar Misr for Publishing and Distribution, Cairo, Egypt, 2020, p. 168.

² - Hamam al-Qouji, “The Issue of Liability for Robots”, Jil Legal Research Journal, Issue 25, 2017, p. 5.

themselves, but because civil law does not directly impose liability on robots for reasons related to the granting of legal personality to them. Therefore, humans address intelligent robots as peers rather than as subordinates of humans because they have an independent legal status¹.

It is also legally unacceptable for the relationship between humans and robots to be considered as a guardianship over property or a guardianship over a person, since these relationships are primarily based on the existence of a kinship or a judicial appointment in the absence of legal provisions. Such descriptions are not valid between humans and robots. Moreover, it is illogical to discuss a contractual relationship between an undefined robot and a human being. At this stage of legal capacity, the robot is not allowed to enter into transactions. Furthermore, the human representative does not have the position of the robot's debtor within the framework of the so-called assignment of debt. This type of assignment arises from an existing legal obligation, whereby the assignor undertakes to pay the amount owed to the assignee, and the assignment is made only with the consent of the creditor. As far as the representation of humans by robots is concerned, there is no pre-existing obligation between the robot and the human, and no obligation arises between the robot and its human representative unless the intelligent artificial robot causes an error that requires compensation for the benefit of the injured party, without the latter's consent to accept compensation from the human instead of the robot².

From the above we can conclude that the theory of human responsibility as a representative is a temporary and exaggerated special case aimed at shifting responsibility from the system of object guardianship based on presumed fault to the system of human representation, making humans responsible for robot errors. The reason for this shift in the system of responsibility is the transition of the theory of artificial intelligence, from the inherent nature that requires guardianship or being a minor in need of judicial supervision, to applications that are independent intelligent machines in thinking and acting. The European legislator's position on the theory of human representation is therefore a middle ground. It does not regard them as mere material objects in order to preserve their potential for future personality recognition. Nor does it consider them to be legally incompetent or incapable, given the current difficulties in conferring legal personality on them. Thus, the human representative is responsible for damage caused by their manufacture or operation while in motion. However,

¹ - Mohamed al-Saeed al-Sayyid Muhammad al-Mushir, "Towards a Comprehensive Legal Framework for Civil Liability for Damages Caused by Unsupervised Artificial Intelligence Systems", Paper presented at the Conference on Legal and Economic Aspects of Artificial Intelligence and Information Technologies, 2021, pp. 12-13.

² - Emilym Weitzenoek, "Electronic Agents and the Formation of Contracts", International Journal of Law and Information Technology, Vol. 9, No. 3, 2001, p. 3.

when in a state of rest, they are material objects that do not fall under the theory of human representation and one would inquire about their guardian, as explained above.

Second, the forms of human representation and the nature of their responsibility:

1. Forms of human representation:

1.1 The producer:

This refers to the individual or the intelligent industrial system that produces the evidence or the machine. The manufacturer is responsible for any errors committed by the machine that can be attributed to manufacturing or production defects. For example, if the industrial manufacturer conceals a safety flaw in a self-driving car that causes it to veer off course and injure pedestrians, or if the robot responsible for medical analyses produces inaccurate results due to a manufacturing flaw, the responsibility of the human representative is established¹.

1.2 The artificial intelligence operator:

This refers to the person responsible for operating and supervising intelligent industrial robots to enable them to carry out their assigned tasks. The operator is responsible for any damage caused by the machine as a result of operating errors. Therefore, the civil liability of the operator of the intelligent machine is established as a human representative. This can be compared to a doctor who makes a mistake in operating an industrial robot during a surgical procedure on a patient².

1.3 The owner of the artificial intelligence:

This refers to the owner of the industrial robot who operates the robot for his own benefit or for the benefit of people interacting with it. If harm is caused to others as a result of the owner's operating error, the owner may be held civilly liable. For example, in the case of a self-driving car, the owner who is aware of the risks associated with their vehicle or who makes a mistake in operating the car would be held responsible for the consequences of that mistake. Similarly, the owner of a hospital who is a doctor and makes a mistake in operating an

¹ - Hamam al-Qouji, "The Issue of Liability for Robots", Jil Legal Research Journal, Issue 25, 2017, p. 7.

² - Faten Abdullah Saleh, "The Impact of Artificial Intelligence and Emotional Intelligence on Decision-Making Quality", Master's Thesis, Middle East University, Jordan, 2009, p. 8.

intelligent industrial machine during a surgical procedure, thereby putting the patient's life at risk, would be held responsible for the potential damage¹.

1.4 Users of artificial intelligence:

This refers to any non-owner and non-operator who uses the intelligent machine. It includes anyone who uses the industrial robot without being the operator or the owner. This person is responsible for any unlawful acts committed by the intelligent machine that cause harm to others.

The European legislator has thus departed from the traditional legal and jurisprudential approaches to the system of responsibility. This departure contradicts the general rules of liability, which consider the owner as a presumed guardian in terms of fault. It also contradicts the theory of tutelage, which assumes the responsibility of the owner and holds the subordinate liable for any damage caused by the use of the object. This approach differs from the responsibility of the subordinate for the acts of the principal.

2. The nature of civil liability for human agents:

2.1 Liability for negligence of human agents:

2.1.1 With regard to intelligent mechanical systems:

Under European law, civil liability for this type of artificial intelligence is similar to the general principles of civil liability in civil law. In the case of intelligent mechanical systems, such as self-driving cars, the human representative is held liable once the elements of liability are established, including fault, damage and causation, without assuming fault. European civil law, which aims to reduce the liability of manufacturing companies, excludes the manufacturer of intelligent mechanical robots from strict liability or liability without fault. The injured party must therefore claim compensation by proving actual damage and establishing a causal link. At this point, the manufacturer's liability for negligence as the human representative of the industrial robot is established².

2.1.2 About virtual robots:

This type of intelligent application lacks physical existence. Therefore, the civil liability of the human representative for virtual robots is similar to the theory of guardianship of things. It is not based on the assumption of fault due to the

¹ - Hamam al-Qouji, "The Previous Reference", p. 7.

² - Section AH, European Parliament, Civil Law Rules on Robotics of 2017.

immaterial nature of these applications, as they remain in the realm of the virtual world and not that of physically dangerous objects.

2.2 Contractual liability for human representatives:

In this case, the human representative is liable for any damage caused by the industrial robot as a result of a breach of the terms of the contract. For example, if a contracting client can prove that the damage he has suffered is due to the fact that the company responsible for operating or owning the intelligent robot did not properly fulfil its contractual obligations, there is a presumed causal link between the company's fault and the damage caused to the client by the industrial robot.

The European legislator has also allowed for contractual liability provisions that deviate from general contractual principles, recognising the need to establish new efficient and effective contractual rules that take into account the extent of emerging technological advances. This perspective is supported by some legal scholars, who argue in favour of considering intelligent applications separately from the physical objects used, thus considering the company as the principal and the robots as its agents, making the company liable for compensation of any resulting damage¹.

Conclusion:

The research has focused on the issue of artificial intelligence and the modern foundations of civil liability, especially within the European legislation that has regulated this issue. The Algerian legislator has also addressed this issue, although Algeria can be considered less advanced in this field. However, this does not mean that there is no regulation, considering that Algeria is an independent country. It is therefore important for the legislator to address this issue and fill any legal gaps.

At the end of the study, a number of findings and recommendations were identified:

First, the findings:

1. The Algerian legislator, like many other comparative legislators, has not regulated the subject of artificial intelligence and the emerging intellectual property resulting from it.

¹ - Younis al-Mukhtar, "The Liability of the Principal for Acts of Agents in English, Iraqi and Emirati Law: An Analytical Study", University of Sharjah Journal, Volume 14, Issue 2, 2016, p. 126.

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2. Artificial intelligence refers to the state in which evidence is made capable of simulating human intelligence by enabling it to acquire and analyse information and draw conclusions on its own, without human intervention.
 3. Granting legal personality to deep learning robots, as the European legislator has done, is a strange and unfamiliar legal situation in general Arab legislation, including Algeria. According to Algerian laws, individuals are either natural or legal persons, and granting such legal personality to intelligent evidence violates the existing legal system, which is based on only two types of persons.
 4. Artificial intelligence is a concept of mixed nature, and therefore there are no specific legal rules that can be applied to all claims related to damages caused by its intelligent applications.
 5. There is no provision in the Algerian legal system that considers the risks of technological progress as a ground for exemption from civil liability for damage caused by modern technological products.

Secondly, the recommendations:

1. The Algerian legislator should enact a law called “Artificial Intelligence Ethics Law”, which will establish centres for information and artificial intelligence. These centres should include a group of legal experts and specialists in modern technologies and various other disciplines to monitor the quality of manufactured and imported intelligent systems. They should also establish regulations for their use and deal with any errors that may occur.
2. There is a need to develop a clear strategy for artificial intelligence that outlines public policy for the manufacture, import and use of intelligent devices, especially considering that Algeria is a consumer country and currently lacks a strong position in this field. This makes it vulnerable to external pressures regarding the import of intelligent systems, both physical and non-physical. Conditions should be set to ensure that the importer has control over the devices, similar to a parent giving a child a controlled toy, in terms of the methods of use, the duration and the ability of the source to electronically control these machines without relying solely on the importer’s consent.
3. It is important to differentiate and judge software according to its level of independence and intelligence. Users should not be held entirely responsible for the actions of unexpectedly intelligent programs without considering other factors. It is necessary to identify the source and nature of the problem that caused the damage, rather than placing all responsibility on the user.

