



Civil Liability for Damages Caused by Artificial Intelligence Systems: A Comparative Analytical Study

BEKKA HASSENE *

Faculty of Law and Political Science

University of Bejaia

hassene.bekka@univ-bejaia.dz

Received: 22/ 02 / 2026

Accepted: 02/ 03 /2026

Published: 31/ 03 /2026

Abstract:

Recent advances in artificial intelligence (AI) technologies have led to the emergence of numerous practical applications capable of self-learning and autonomous decision-making in response to their surrounding environment. Among the most prominent of these applications are robots, autonomous vehicles, and unmanned aerial vehicles (drones). These technologies have generated significant benefits in various fields, including economic, medical, and military sectors, thereby fostering development and enhancing overall efficiency.

However, the impact of AI systems is not confined to their positive outcomes. Their autonomous operation may also give rise to physical or material damage affecting individuals or property. This reality raises complex legal questions regarding the scope of civil liability arising from the use of AI systems. In particular, it necessitates an examination of the legal foundations of such liability, the conditions for its establishment, the mechanisms for proving damage and causation, as well as the available methods for compensating harm resulting from the actions of AI systems.

This study adopts a comparative analytical approach to assess the adequacy of traditional civil liability regimes in addressing damages caused by artificial intelligence systems, while exploring the need for adapted or innovative legal frameworks capable of ensuring effective protection for victims and maintaining legal certainty.

Keywords: Artificial Intelligence Systems; Civil Liability; Damage; Compensation.

*Corresponding author



Introduction :

Artificial intelligence (AI) systems undeniably play a pivotal role in the development of modern societies, including the evolution of contemporary legal systems. Current and foreseeable technological advancements underscore the growing significance of these systems, thereby raising fundamental legal questions—most notably, the issue of civil liability for damages caused by artificial intelligence. As technological progress accelerates, legal frameworks are increasingly confronted with unprecedented challenges, particularly those posed by intelligent systems that now permeate various aspects of scientific, economic, and practical life. These systems are designed to emulate human behavior and perform a wide range of tasks independently, with the overarching objective of improving the quality of life in contemporary societies¹.

Robots constitute one of the most prominent and widespread applications of artificial intelligence, especially in industrialized countries, where reliance on them has steadily increased to perform hazardous, complex, or highly specialized tasks. However, this growing dependence raises serious legal concerns when such systems cause harm to third parties. Given the distinctive nature of liability arising from damages caused by artificial intelligence, it becomes necessary to examine the extent to which traditional rules of civil liability can be applied in this context. This examination requires identifying the legal basis of liability, clarifying its nature - whether contractual, tortious, or strict (objective) liability - and exploring the mechanisms for compensating victims for damages resulting from the operation of AI systems.

The inadequacy of traditional civil liability rules to keep pace with these technological developments necessitates the exploration of a new legal approach, which may be referred to as “intelligent civil liability”. Such an approach seeks to address the fundamental question of whether conventional liability regimes are capable of providing effective legal protection and adequate compensation for damages caused by artificial intelligence systems.

To answer this question, the study adopts a descriptive and analytical methodology, aimed at providing a comprehensive examination of the subject through the analysis of legal texts governing civil liability and relevant doctrinal opinions. In addition, a comparative method is employed to assess selected foreign legislations and judicial approaches in this field.

Within this framework, the study analyzes the rules derived from civil liability law and the obstacles that may hinder their application to damages caused



by artificial intelligence. This is achieved by first examining the legal basis for establishing civil liability for such damages (Topic I), followed by an analysis of the nature of this liability and its legal consequences (Topic II).

THE FIRST TOPIC: The Basis for Establishing Civil Liability for Damage Caused by Artificial Intelligence Systems

The search for a liability regime capable of regulating the deployment and use of artificial intelligence systems² constitutes a highly significant legal challenge. Compensation for damage caused by these systems, as well as the determination of liability when such damage occurs, is central from the perspective of legal certainty. This legal certainty concerns not only potential victims seeking compensation for the harm they have suffered, but also economic and scientific actors, who are entitled to question the extent of their liability when making these systems available for use or marketing them, particularly in cases of misuse.

Accordingly, examining the basis of civil liability for damage caused by artificial intelligence becomes a necessity. This requires consideration of two types of legal liability: liability for the custody of things (the first requirement), and product liability for defective products (the second requirement).

FIRST REQUIREMENT: Liability for the Custody of Things as a Basis for Civil Liability for Artificial Intelligence Damage

Liability for the custody of things is considered a form of strict (objective) liability, whereby the custodian of a thing is obliged to compensate for the damage caused by that thing to others, without the need to prove fault. This requires that the person have the status of a custodian, meaning that they possess the power to use, manage, and control the thing. The custodian status thus constitutes the legal basis for holding them liable.

The Algerian legislator has provided for this liability in Article 138 of the Civil Code, which states: “Any person who has custody of a thing and has the power of use, management, and supervision shall be liable for the damage caused by that thing. The custodian of the thing shall be exempt from liability if they prove that the damage occurred due to an unforeseeable cause, such as the act of the victim, the act of a third party, an emergency situation, or force majeure.”³ This provision corresponds to Article 178 of the Egyptian Civil Code⁴, as well as Article 1242 of the French Civil Code⁵.



Examining the possibility of applying the theory of civil liability for the act of things to artificial intelligence systems requires, first, identifying the general conditions for establishing such liability, and then subsequently verifying the extent to which these conditions apply to artificial intelligence systems. These conditions are: the existence of a “thing” (firstly), custody of the thing (secondly), and the occurrence of damage caused by the thing (thirdly).

Firstly: The Existence of the “Thing” Requirement

Pursuant to Article 138 of the Algerian Civil Code, Article 1242 of the French Civil Code, and Article 178 of the Egyptian Civil Code, the establishment of civil liability for the act of things requires that the element of a “thing” be present. A “thing” refers to any entity possessing an independent existence, whether tangible and material—such as land, inanimate objects, plants, and animals—or intangible and immaterial, such as authors’ ideas, inventions, and trademarks.

Artificial intelligence systems, in themselves, fall within the category of intangible things, whereas their practical applications constitute tangible things, such as robots, autonomous vehicles, and unmanned aerial vehicles (drones). Accordingly, the requirement of the existence of a “thing” is clearly satisfied with respect to the material applications of artificial intelligence⁶. However, a difficulty arises with regard to artificial intelligence software itself as an intangible thing, raising the question of whether the term “things” as used in Article 138 of the Algerian Civil Code encompasses such software, or whether it is limited solely to tangible things.

In this regard, some French scholars⁷ reject the inclusion of intangible things within the concept of “things”, on the ground that non-material entities—such as information and software—cannot directly cause harm to others due to their intangible nature. This view is supported by a judgment of the Paris Court of First Instance, which held that “an image capable of being stored and reproduced constitutes a thing within the meaning of Article 1384 of the Civil Code, whereas an image that cannot be stored does not”⁸.

Conversely, another doctrinal approach advocates for a broader interpretation of the concept of “things” so as to include intangible things. This position relies on Article 311-1 of the new French Penal Code, which defines theft as the unlawful appropriation of another’s property, thereby opening the door to recognizing the possibility of stealing information⁹. This approach is further



reinforced by the well-known judicial decision in the *Bourquin* case, in which the criminal courts convicted two individuals for stealing informational content consisting of data stored on forty-seven compact discs during the process of data reproduction¹⁰.

In light of the foregoing, it may be argued that the term “things” as used in Article 138 of the Algerian Civil Code is formulated in general terms and, in its scope, encompasses intangible things alongside tangible ones. This is because liability for the act of things is based not so much on the nature of the thing itself as on the concept of its custody. Accordingly, the requirement of the existence of a “thing” does not constitute an obstacle to the application of civil liability for the act of things to artificial intelligence systems, insofar as they are intangible things that require special and continuous supervision.

Secondly: Custody of the Thing

According to the general rules on liability for the custody of things, civil liability for damage caused by artificial intelligence systems arises only when the element of “custody” of the thing (e.g., a robot) is established, even if the custodian is not the owner. A custodian is understood to be a person who exercises actual control over the thing, independently and intentionally¹¹, analogous to mechanical devices that lack autonomous will. Liability thus rests on whoever holds the authority to use, direct, and supervise the thing, whether the owner or another person to whom custody has legally or factually been transferred¹².

However, identifying the custodian, whether a natural or legal person, faces complex challenges in an artificial intelligence environment due to the multiplicity of actors, including manufacturers, programmers, and developers. Even when the custodian is identified, they may be able to exonerate themselves under Article 138 of the Civil Code, which allows the custodian to be exempt from liability if it is proven that the damage resulted from an external cause beyond their control, which could neither have been foreseen nor prevented. This is particularly relevant given that the actions of artificial intelligence systems are sometimes unpredictable or uncontrollable, which may confer upon them the status of “force majeure”¹³.

Accordingly, it can be argued that the establishment of actual custody gives rise to civil liability on the basis of the custodian’s responsibility, unless proven otherwise. For example, if a robot used in performing a surgical operation causes harm to a patient, the potential liability may be attributed to whoever holds actual authority over it—whether the physician as the direct user, the hospital administration, the robot’s manufacturer, the programmer, or any other person who



exercised the power of use, management, or supervision of the robot at the time the damage occurred¹⁴.

Thirdly: Occurrence of Damage Caused by the Thing

For liability of the custodian of non-living things to arise, it is required that the damage result from the “positive act” of the thing under custody; that is, the thing must contribute directly to causing harm to others. It is not necessary for there to be a direct physical contact between the thing and the injured party; it is sufficient that the thing plays an active role in producing the harmful outcome¹⁵.

Here, the question arises as to the extent to which the requirement of damage caused by the act of a thing applies to artificial intelligence software, and whether such software can, through its positive actions, cause harm to others. In reality, answering this question requires referring to practical experience in order to identify incidents in which artificial intelligence programs themselves, as well as their material applications (such as robots, autonomous vehicles, and self-piloted drones) have caused damage to third parties¹⁶.

Some scholars argue that human error is always behind the damage potentially caused by intangible things, on the premise that such things cannot harm others on their own. However, practical experience demonstrates otherwise. The development of artificial intelligence systems has given rise to numerous incidents resulting in complex legal disputes, which are often difficult to resolve due to the absence of specific legislation regulating this new category of harmful agents¹⁷.

For example, damage caused by artificial intelligence in the field of information processing may occur in cases of the dissemination or promotion of false or misleading information. A notable instance concerns the Google Suggest service, an algorithm based on machine learning techniques that aims to suggest phrases completing users’ search queries. Certain cases have shown that the service’s results linked the names of some companies or public figures to insulting or defamatory terms, thereby harming their reputations and raising serious legal questions regarding the liability of these systems for damages resulting from their autonomous activity¹⁸.

It can be argued that the applicability of the “custodian of the thing” concept to artificial intelligence systems depends on the degree of autonomy these systems possess. A robot that makes autonomous decisions is difficult to control, and the possibility of subjecting it to the custodian’s supervision and control diminishes.



Consequently, the custodian's liability is excluded if it is proven that the damage arose from an act for which no one can be held legally responsible¹⁹. Furthermore, holding the custodian liable for damages caused by artificial intelligence would unrealistically attribute gross errors throughout the multiple, complex stages of design, programming, and development. Additionally, artificial intelligence is composed of intangible software programs, which makes it challenging to determine who the responsible custodian is for potential damages caused by AI systems²⁰.

Second Requirement: Liability for Defective Products as a Basis for Accountability for Artificial Intelligence Damage

The Algerian legislator did not provide a precise definition of a "product," but considered it as movable property, limiting the description to certain things regarded as products in the second paragraph of Article 140 bis of the Civil Code:

"A product is any movable property, even if attached to immovable property, particularly agricultural products, industrial products, animal husbandry, food industry, hunting and fishing, and electrical energy."

From this text, it is understood that the legislator enumerated the types of products restrictively. Applying this concept to artificial intelligence systems, it appears that the "product" status applies to the material applications of artificial intelligence, as they are machines falling within the scope of industrial products. Similarly, AI software, by its intangible nature, can also be considered a product within the meaning intended by this provision.

Accordingly, studying civil liability for damage caused by artificial intelligence systems on the basis of producer liability for defective products requires examining the legal foundation for such liability (firstly), then considering the conditions that must be met for the producer's liability to arise (secondly), and finally, analyzing the causal link between the defect and the damage (thirdly).

Firstly: The Basis for Producer Liability for Defective Products

The Algerian legislator regulated producer liability for defective products in Article 140 bis of the Civil Code. This type of liability has a distinct legal character, differing from both contractual and tort liability. It is an objective liability that does not depend on fault, but rather is based on the theory of risk, also



known as the theory of assuming responsibility²¹. According to this principle, any injured party has the right to claim compensation for the damage suffered, regardless of the nature of the relationship with the producer—whether contractual or as a third party. This is explicitly affirmed by the French legislator in Article 1245, paragraph 2 of the French Civil Code²².

The basis of liability for defective products rests on the concept of damage, applying the principle “*loss falls with gain*” (*la perte va avec le gain*), which aligns with the nature of the harm that may result from such products. The producer is obliged to bear the consequences of their activity in accordance with the theory of risk; just as they reap profits and benefits, they must, in turn, assume the damages that may arise from their defective products²³.

In cases where the producer or manufacturing company cannot be identified, liability extends to the seller, lessor, or any other professional supplier, holding them responsible for the product’s lack of safety, as provided in Article 1245, paragraph 6 of the French Civil Code²⁴.

Secondly: Conditions for Establishing Producer Liability

The legal accountability of a producer requires the fulfillment of a set of essential conditions, which must be satisfied for such liability to arise. These conditions can be outlined as follows:

1. Existence of a Defect in the Product

Liability for defective products requires that the harm suffered by the injured party result from a defect in the product. A defect, according to general rules—particularly the provisions of the Consumer Protection and Anti-Fraud Law No. 09-03²⁵, as amended—refers to the non-conformity of the product with legally established specifications and technical standards. A sound and marketable product is one free from any hidden deficiency or defect that could compromise the health and safety of the consumer, or cause damage to their material or moral interests.

Accordingly, in the context of producer liability, a defect consists of the inherent risks present in the product, which may cause bodily harm to individuals, considering that the element of risk may be inherent in the function of the artificial intelligence system, regardless of any manufacturing fault²⁶.

Examining the applicability of this condition to damage caused by artificial intelligence systems, and relying on defective product liability rules as a basis for



compensating such damage, requires careful analytical consideration. Imposing on the injured party the burden of proving the existence of a defect in these systems or their material applications is not straightforward, given the high level of technical and engineering complexity involved. In some cases, these systems may be entirely free from defects, which would preclude the application of defective product liability provisions²⁷.

In conclusion, subjecting artificial intelligence systems to current producer liability rules is extremely challenging, primarily due to the difficulty in precisely identifying the fault that directly caused the damage. This calls for reconsideration of traditional liability rules to adapt them to the specific nature of artificial intelligence. Moreover, considering a robot as a dangerous activity under the law, and the consequent application of liability for hazardous activities, also necessitates identifying the responsible party, further complicating the issue.

Therefore, the current form of producer liability is insufficient to address damage caused by artificial intelligence systems. Additionally, attributing all harm solely to the producer—assuming the exclusion of development risks and proving the absence of safety—remains inappropriate given the complexity of AI production and the multiplicity of actors involved, creating real difficulties in determining responsibility for the damage²⁸.

2. Occurrence of Damage as a Result of the Defect

Damage constitutes a fundamental element of civil liability for producers and is defined as: *“harm that affects a person’s rights or a legitimate interest of theirs.”*. It encompasses any infringement on the injured party’s person, property, or any of their lawful rights, resulting in material or moral loss. Damage has also been described as: *“the initial trigger prompting consideration of liability for the one who caused it, whether this liability arises under rules of personal acts, acts of others, or acts of things”*²⁹. Thus, damage is a primary and essential condition for civil liability and, consequently, for the possibility of claiming compensation.

Accordingly, a civil liability claim—whether contractual, tortious, or objective—cannot succeed without the existence of damage. To qualify for compensation, the damage must meet certain conditions: it must be actual and realized, direct, personal, and must not have been previously compensated, in line with the principle prohibiting double compensation for the same damage³⁰. The burden of proving damage lies with the claimant. In any case, it remains essential to demonstrate a causal relationship, direct or indirect, between the damage incurred and the action of the artificial intelligence system, in order for



compensation to be envisaged. Furthermore, compensation should cover all types of damage that may be caused by the AI system, not limited to material harm, but also including moral or immaterial damage when proven³¹.

Thirdly: Causal Link Between the Defect and the Damage

As with all forms of civil liability, the injured party must prove the existence of a causal link between the defective product and the damage suffered. Accordingly, the victim of a defective product is obliged to demonstrate the relationship between the defect affecting the product and the harm they experienced. The burden of proof in this regard rests on the injured party, as a manifestation of the legal protection afforded to them³².

French doctrine and jurisprudence have established two legal presumptions regarding the proof of causation³³. The first presumption concerns the existence of the defect at the time the product was put on the market, as recognized by the French legislator in Article 1245-11 of the Civil Code, which prevents the producer from invoking the exoneration grounds provided in paragraph 4 of Article 1245-10 whenever the damage results from human action or from products derived therefrom. The second presumption relates to the product being placed on the market by the producer's will, as stipulated in Article 1245-4 of the same Code, which provides that a product is deemed marketed once the producer voluntarily releases it, and that a product can only be placed on the market once³⁴.

To prove a defect in intelligent systems, it is required that the damage result specifically from that defect. This principle is confirmed by several comparative legislations, including the European Directive, whose Article 4 stipulates that the burden of proving damage, the defect in the product, and the causal link between them rests on the claimant³⁵. Similarly, Article 1245-8 of the French Civil Code affirms this principle by requiring proof of the causal relationship between the defect and the damage³⁶.

Although the system of strict producer liability appears to be an effective framework for robotics and artificial intelligence systems, as it holds the producer responsible for damages caused by their products without requiring proof of fault, it faces significant practical difficulties. The element of risk is inherent in the function of the robot itself, making it a permanent source of hazards³⁷. Moreover, the autonomous decision-making capability of these systems complicates proving the existence of a defect in artificial intelligence products, thereby increasing the burden on the injured party and limiting the practical effectiveness of this liability framework³⁸.



Second Topic: The Nature of Civil Liability for Damage Caused by Artificial Intelligence Systems and Its Effects

Civil liability, according to its traditional function, is divided into contractual liability and tortious liability, and later evolved to include strict (objective) liability. The primary consequence of this liability is compensation for damages that artificial intelligence systems may cause to others. However, the issue of compensation in this context raises numerous challenges, both in terms of its type and the criteria for its assessment, particularly given the high technical specificity of these damages, which makes them more complex and hazardous compared to traditional forms of harm.

Accordingly, we will address the nature of civil liability arising from damage caused by artificial intelligence systems (first requirement), and then examine the effects of such liability (second requirement).

First Requirement: The Nature of Civil Liability for Damage Caused by Artificial Intelligence Systems

Civil liability arising from the acts of artificial intelligence constitutes one of the most prominent contemporary legal challenges, given the advanced level these systems have reached, allowing them to make decisions largely independent of human will. This has prompted extensive legal and doctrinal debate regarding the possibility of granting artificial intelligence legal personality, and the consequent rights and obligations that would place it in a legal position similar to that of a natural person—a matter that remains controversial in most comparative legislations.

In this context, studying the nature of civil liability for artificial intelligence, based on the personal consideration of responsibility, requires determining the extent to which AI can be held accountable for its actions independently. This necessitates examining AI's contractual liability (firstly), tortious liability (secondly), and, finally, strict liability (thirdly).

Firstly: Contractual Liability of Artificial Intelligence

Contractual liability is one of the branches of civil liability in general, aiming to compensate the injured party for damages and losses resulting from a breach of obligations arising from a contract or from delays in their performance. Contractual liability is essentially a consequence of the breach of contract or a



sanction for failure to fulfill an obligation, whether the breach is total or partial, or occurs in the form of delayed performance³⁹.

Contractual liability arises whenever one party fails to fulfill its obligations toward the other party. Breach is understood broadly to include refusal to perform, defective performance, or delayed performance. If an artificial intelligence system is used within a contractual relationship, contractual liability, in principle, is based on the breach of a contractual obligation by one of the parties, provided the legal conditions are met⁴⁰. These conditions include the validity of the contract, the occurrence of a breach, and the establishment of the elements of contractual liability: fault, damage, and a causal link.

Contractual fault may take various forms depending on the nature of the debtor's breach. It may involve failure to perform an obligation or delay in its performance, causing harm to the creditor. Contractual damage is the direct consequence of the contractual fault; contractual liability provisions do not apply if the fault does not result in harm. The damage must result directly from non-performance or breach of the contract and may include financial loss or lost opportunities for profit, provided it is directly linked to the act giving rise to liability⁴¹.

Thus, for contractual liability to arise, it is not sufficient to prove fault and damage alone; a causal link must also be established, meaning that the fault must be the direct cause of the damage, with no intervening causes. The burden of proof rests on the claimant, the party seeking compensation for losses resulting from the breach.

However, applying contractual liability provisions to artificial intelligence systems raises deep legal issues, particularly given the advanced cognitive capabilities of these systems. It is evident that enforcing contractual liability on AI systems is extremely difficult. Even assuming these systems possess a high degree of decision-making autonomy and advanced knowledge capabilities, human supervision remains necessary, raising the question of who is responsible for operating and directing the AI. This supports the view that, in the event of damage, the injured party may seek recourse against the person who assigned the AI system to perform the contractual obligation or who used it to execute the contract⁴².

Accordingly, subjecting artificial intelligence to contractual liability does not appear sufficient to address the damages that may result from its use. Moreover, contractual liability is, by nature, attributed to a natural or legal person who breaches a contractual obligation, and cannot be directed directly at the AI system



itself. Even if the contract contains clauses defining the AI system's capabilities and potential risks, the obligation arising from such contracts generally amounts only to a duty of care, rather than an obligation to achieve a specific result, which limits the applicability of contractual liability in this field.

Secondly: Tort Liability of Artificial Intelligence

Tort liability, in principle, is based on fault, which must be proven. The general rule holds that any person who causes harm to another through their fault is obliged to compensate for it. The overarching legal duty is not to harm others, and any violation of this duty constitutes a fault that requires compensation for damage caused to the injured party's person or property⁴³. The Algerian legislator explicitly affirmed this principle in Article 124 of the Civil Code, which provides: *"Any act, whatever it may be, committed by a person through their fault and causing harm to another obliges the person responsible to provide compensation."*

Tortious fault is defined as a deviation from the behavior of an ordinary person possessing discernment and awareness. Alongside fault, damage is an essential element for the establishment of civil liability in general and tort liability in particular. The damage, whether material or moral, must be actual and affect a legitimate right or financial interest of the claimant⁴⁴.

Furthermore, tort liability requires a causal link between the fault and the damage, meaning the damage must result directly from the fault attributed to the responsible person. The question that arises, however, is whether tort liability provisions can be applied to damages caused by artificial intelligence systems.

The nature of artificial intelligence makes it difficult to reconcile with liability based on fault, as the latter relies fundamentally on discernment and awareness—elements that are not present in AI systems in the traditional sense, despite their autonomy and advanced cognitive capabilities⁴⁵. Consequently, applying tort liability rules for personal acts to the actions of artificial intelligence remains unsuitable.

Even assuming material damage occurs affecting a person's property due to the actions of an AI system, tort liability requires proof of fault attributable to a conscious and aware agent, necessitating elements of will, awareness, and sometimes intent to harm—elements that cannot be ascribed to artificial intelligence.



In conclusion, whether in the context of contractual or tort liability, civil liability based on personal consideration remains tied to the idea of holding a person accountable for their actions, under what is known as direct personal liability. This type of liability depends on direct or indirect personal fault, which renders it insufficient to address the damages arising from artificial intelligence systems.

Thirdly: Strict (Objective) Liability

Strict liability represents a qualitative development in civil liability, as it is based on the occurrence of damage rather than fault; fault does not give rise to liability unless it results in harm⁴⁶. Some legal scholars define it as: *“liability that arises from the mere existence of a causal link between the damage and the activity that caused it, regardless of the fault of the responsible party, even if the activity itself is lawful and proper”*⁴⁷. Another doctrinal approach considers it as liability that requires only a direct causal link between the damage and the act or activity that caused it, without any fault on the part of the responsible party, even if the act or activity itself is correct and free from defects⁴⁸.

Under strict liability, the burden of proof on the injured party is limited to establishing the occurrence of damage and the causal link connecting it to the activity in question, without the need to prove fault or a defect in the artificial intelligence systems. This type of liability shifts focus from fault to damage as the legal basis for liability, so the responsible party cannot evade liability by denying fault⁴⁹. Consequently, basing liability solely on the occurrence of damage provides an effective safeguard and genuine protection for the injured party, particularly by relieving them of the burden of proving a defect in AI systems—a task that has become increasingly difficult given the technical complexity of these systems⁵⁰.

Applying strict liability in cases involving multiple actors contributing to damage caused by AI systems raises a core issue: determining who is obligated to compensate the injured party—whether it be the manufacturer, programmer, developer, owner, or user. Given the technical and functional particularities of AI systems, both the 1985 European Directive and French law have established a presumed joint liability among all parties involved in the production⁵¹, manufacturing, development, or use of these systems. This allows the injured party to claim compensation without needing to prove fault on the part of the manufacturer; it suffices to demonstrate the harm suffered and the causal link⁵².

Since strict liability can be founded on the principle of risk, which holds that anyone who engages in an activity that inherently involves risks and causes harm



to others must bear the consequences regardless of the benefits derived, it provides the legal framework most consistent with the theory of emerging risks⁵³. This theory constitutes one of the two fundamental principles of strict liability, alongside the “*gain and loss*” principle. Accordingly, doctrine and jurisprudence have tended to adopt strict liability rules based on emerging risks to address damages caused by AI activities, as these rules are better suited to account for the nature and specificity of such harms. This requires holding the responsible party accountable for the consequences of these unusual activities and the damages they may cause⁵⁴.

In any case, an analysis of civil law rules reveals several shortcomings in framing liability for damage caused by AI systems. The impossibility of applying the concept of personal acts, the insufficiency of general conditions for liability for things, and the limited concept of defect in product liability all clearly demonstrate that current civil law rules are incapable of effectively encompassing these systems and regulating the resulting liability.

Second Requirement: Effects of Civil Liability for Damages Caused by Artificial Intelligence Systems

Once civil liability is established, the next step concerns compensation for damages caused by AI systems, granting the injured party the right to claim restitution for the harm suffered. However, awarding compensation in this area raises complex legal issues, particularly regarding the nature of compensation and the rules for its assessment, due to the highly technical nature of these damages, their increased risks, severity, and complexity compared to traditional damages, as well as the difficulty in predicting their effects and precisely determining their scope.

The injured party may file a lawsuit requesting the responsible party to compensate them once the elements of civil liability are proven, using all legally recognized means of evidence (Firstly). Compensation is generally monetary, typically collected through an insurance system or a dedicated compensation fund covering damages resulting from AI activities (Secondly).

Firstly: Judicial Compensation for Damages Caused by AI Systems

Upon fulfilling the elements of civil liability, the injured party is entitled to claim compensation for the harm suffered through a judicial action demanding that the responsible party repair the damage. The burden lies on the injured party to



prove the existence of the elements of civil liability using all legally recognized forms of evidence, as these constitute material facts⁵⁵.

Compensation awarded by courts is usually monetary due to the difficulty of granting in-kind restitution for damages caused by AI systems, i.e., restoring the situation to its original state and fully eliminating the harm. Monetary compensation remains the primary tool for the judiciary to mitigate the harm suffered by the injured party. The amount of compensation is subject to the judge's discretion, with the principle that it should be full, covering both the losses suffered and the profits foregone, obliging the responsible party to pay the injured party a monetary sum as reparation⁵⁶.

According to general rules, damage can be remedied either through in-kind restitution, aiming to restore the situation to its prior state, or through monetary compensation granted to the injured party. However, damages caused by AI systems are often too complex and technical to be remedied in-kind, making monetary compensation the most practical means of redress.

Monetary compensation covers physical damages that may result from the malfunction of a robot, alterations in the physical or intangible components of a product, or poor maintenance—all of which can be compensated financially⁵⁷. However, estimating compensation for moral or non-material damages is challenging, as it is typically only compensable when linked to physical harm due to the difficulty of assigning a precise monetary value.

The injured party is entitled to compensation for both physical harm and moral or non-material harm, such as violations of non-financial interests like feelings, reputation, or honor. Both doctrine and jurisprudence recognize the right of the injured party to obtain compensation for these damages, including measures that mitigate or reduce harm in monetary terms⁵⁸.

Furthermore, the responsible party is obligated to compensate for consequential damages, i.e., harm suffered by third parties as a result of the direct damage to the primary injured party, whether related by kinship or financial connection affecting their material or moral situation. Compensation is not limited to the directly injured person but may include others who suffer personal damages from the same event.

This principle was illustrated in the case of the death of American worker **Robert Williams** on January 25, 1979, the first recorded death caused by a robot at a Ford factory while transporting goods to a storage room, due to the robot's



error in recognizing him. His family sued the robot's manufacturer for negligence in design, manufacture, and delivery of the storage system and for failing to warn operators of the expected risks. The court awarded the family ten million dollars in compensation due to inadequate safety measures to prevent such an accident⁵⁹.

Secondly: Automatic Compensation as a Mechanism for Applying AI Liability

To ensure the effective application of liability for damages caused by AI systems, the European Parliament and some legal scholars have proposed reinforcing the system through supplementary mechanisms, most notably: establishing a mandatory insurance system (1) and creating a dedicated compensation fund for AI-related damages (2).

1. Establishing Mandatory Insurance for AI Systems

Creating an insurance system covering all potential risks and damages arising from the use of AI systems—not just part of them—is a necessary and appropriate step. This can be achieved by adopting strict liability rules, which automatically assign liability to all parties involved in designing, developing, and using these systems due to the highly hazardous nature of AI technologies⁶⁰.

A mandatory civil liability insurance system for AI-related damages should be implemented, similar to mandatory automobile liability insurance. In this case, the injured party or their heirs, in the event of death, would have the right to receive the legally stipulated insurance amount without resorting to litigation, while retaining the right to pursue the responsible party for amounts exceeding the insurance if necessary⁶¹.

Additionally, the injured party or heirs may combine the statutory insurance payment with any additional amounts from optional insurance policies covering potential compensation for bodily injury or death resulting from AI systems and their physical applications.

The mandatory insurance system provides necessary compensation for damages from AI risks while distributing financial risk among the parties responsible for these systems and insurance companies, supporting the safe development, dissemination, and adoption of AI technologies⁶².



2. Establishing a Compensation Fund for AI Victims

The purpose of creating compensation funds is to supplement the insurance system and ensure the injured party receives compensation when the manufacturer, developer, user, or owner of the AI system lacks financial capacity, goes bankrupt, or when the responsible party cannot be identified. The primary goal is to provide compensation to the injured party when no AI-specific insurance exists and to cover exceptional cases not included in the insurance, such as damages caused by AI systems not yet classified as high-risk⁶³.

The fund would be financed by all parties producing or benefiting from AI systems, through a share of the profits of companies operating in this sector, and by imposing fees on buyers of independent AI systems, with revenues directed to the fund to guarantee full compensation for victims⁶⁴.

Furthermore, the fund distributes financial risks from AI system damages across all manufacturers, developers, and beneficiaries, complementing the mandatory insurance system. It can intervene to provide full compensation when mandatory insurance is absent or insufficient, ensuring the injured party receives complete restitution. However, the fund raises concerns about potentially diminishing the impact of civil liability, as it should not replace or override it⁶⁵.

Conclusion :

This study shows that achieving a balance between the developments of artificial intelligence (AI) and civil liability in its applications remains a complex legal and technical challenge. Despite the significant progress in AI technologies, the biggest challenge lies in identifying the party responsible for errors or harmful acts, given that AI lacks the capacity to bear personal responsibility for its actions.

Hence, there is a need to reconsider and adapt traditional civil liability rules to accommodate the specificities of AI, through the development of laws and policies that keep pace with technological progress while ensuring a balance between innovation and societal protection. This requires collaboration between legal experts, engineers, and developers to establish ethical and legal guidelines to steer the development of AI technologies.

The study emphasizes that the successful application of civil liability rules to AI-related damages requires either integrating these actions within the framework of traditional sources of liability or identifying the person responsible for harmful acts and the proportion of damage attributable to them. It is also noted that the



current system of liability for the acts of things is designed for material objects, which does not align with the immaterial nature of AI. Moreover, proving damage caused by an independent action of AI depends on the injured party's ability to demonstrate the absence of direct human intervention, as any such intervention would exclude strict liability.

Recommendations:

- Apply strict liability to actions resulting from AI technologies, while narrowing exemptions to protect victims who lack sufficient expertise regarding these modern technologies.
- Encourage the Algerian legislator to develop a legal framework regulating AI products in line with societal values and interests.
-
- Identify the person responsible for damages caused by AI-equipped robots.
- Strengthen legal liability, establish consumer protection measures, and enhance oversight of AI-based products' safety.

In conclusion, there is a pressing need to update laws and develop effective protection mechanisms to ensure that society benefits from AI while mitigating its legal and social risks.

Footnotes:

1- Michael Haenlein and Andreas Kaplan Lewis, « A Brief History of Artificial Intelligence : On the Past, Present, and Future of Artificial Intelligence », California Management Review, The Regents of the University of California, 2019, pp. 1-10. Article reuse guidelines: <https://www.researchgate.net> »

See also: Azeng. Danpan, Tianyong Hao, Daoqiang zhang, Yiyu shi, xiaowei song, Human Brain and Artificial Intelligence, Springer Ed., International workshop, HBAI 2019, Held in conjunction with JJCAI 2019, Macao, china, August 12, 2019, p. 6.

2- Sternberg Robert J., Conceptions of the nature of intelligence, Cambridge University Press., 2003, p. 27.

3- Order no. 75-58 of 26 September 1975 on the Civil Code, A.R.O.J. no. 78 of 30 September 1975, as amended and supplemented.

4- This is what Article 178 of the Egyptian Civil Code stipulates: « Whoever is in charge of a thing whose supervision requires special care, or of a machine, is liable for damage caused by it, unless he shows that the damage was due to a cause beyond his control, subject always to any special provisions of the law in this respect ». Available at: Code civil égyptien en arabe, en français et en anglais/

5- Art. 1242 du code civil (Ordonnance n° 2016-131 du 10 février 2016): « On est responsable non seulement du dommage que l'on cause par son propre fait, mais encore de celui qui est causé par le fait des personnes dont on doit répondre, ou des choses que l'on a sous sa garde ... ». Available at: https://www.legifrance.gouv.fr/codes/article_lc/LEGIARTI000032041559/2022-04-26 Accessed on: 14/11/2025.

6- Cédric Coulon, « Du robot en droit de la responsabilité civile: à-propos des dommages causés par les choses intelligentes », Revue Resp-civ, 2016, p.17.



7- EL KAAKOUR Nour, L'intelligence artificielle et la responsabilité civil délictuelle, Mémoire pour l'obtention du Diplôme d'études approfondies en droit interne et international des affaires, facultés de droit et sciences politiques et administratives, université Libanaise, 2017, p. 41.

8- DANJAUME Géraldine, La responsabilité du fait de l'information, JCP, éd. G., 1996, p. 3895, n° 32, où l'auteur estime que l'information est un bien corporel pouvant se voir appliquer l'ancien article 1384 alinéa 1 in fine du code civil.

9- Ibid.

¹- Arrêt Bourquin, n° 87-82.265 du 12 Janvier 1989, Cour de cassation, chambre criminelle, Publié au Bulletin. Available at : <https://www.courdecassation.fr>

10- It is meant by the independent act that the thing itself caused the damage on its own. See: DUMERY Alexandre, « La capacité du droit de la responsabilité civile à indemniser les dommages causés par l'intelligence artificielle », Revue économique, n° 1, Vol. 76, 2025, pp. 74-75. Available at : <https://shs.cairn.info/revue-economique-2025-1-page-63?lang=fr> Accessed on : 19/02/2026.

11- VIAL Alexandre, Systèmes d'intelligence artificielle et responsabilité civile: droit positif et proposition de réforme, Thèse Doctorat de droit privé et sciences criminelles, Université Bourgogne Franche-Comté, France, 2022, pp. 81-82.

12- According to general rules, the custodian cannot absolve themselves of liability except if they prove that the damage occurred due to a third party over whom they had no control. If the cause of the damage remains unknown, the custodian is still held responsible for the harm. A third-party cause is an event in which the custodian had no involvement, making the occurrence of the damage inevitable. Force majeure is considered a type of third-party cause, and for an event to be classified as force majeure, it must be external, unforeseeable, unavoidable, and its consequences cannot be averted. Also considered a type of third-party cause are the faults of the injured party or others, which affect the custodian's liability; that is, if it is proven that the damage to the injured party resulted from their own fault or that of others, the custodian's liability is mitigated.

13- DUMERY Alexandre, op.cit., pp. 74-75.

14- POUGET Jonathan, La réparation du dommage impliquant une intelligence artificielle. Thèse pour le doctorat en droit, Faculté de droit et de sciences politiques, Université Aix Marseille, France, 2019, pp. 44-45.

15- Yann Rozec, Le marché des Drones militaires toujours Florissant, Décembre 2013, Available at: Le marché des drones militaires toujours florissant, par Yann Rozec (Le Monde diplomatique, décembre 2013). Accessed on: 30/11/2025.

16- EL KAAKOUR Nour, op.cit., pp. 55-88.

17- Ibid., pp. 56-57.

18- The custodian can disclaim liability for damages caused by artificial intelligence if they prove, for example, that the harm resulted from a design defect that caused the robot to malfunction, or that the damage was due to lightning causing a short circuit in its electrical system. While, in theory, the custodian's fault might be assumed, in reality, this is entirely different due to the specific nature of this field. See : M. Guillaume, L'élevation Des Robots A La Vie Juridique, thèse, Doctoral School of Law and Political Science (Toulouse), 2016.

19- Archambault L. et zimermann L., « repairing damages caused by artificial intelligence: french law needs to evolve », gazette du Palals, N. 9, 2018, p.17.

20- ABED Samira, « civil liability for the use of the artificial intelligence system », RUSSIAN LAW JOURNAL Volume XIII (2025), p. 1055. Available at : CIVIL LIABILITY FOR THE USE OF THE ARTIFICIAL INTELLIGENCE SYSTEM Accessed on: 12/02/2026.

21- Article 1245-2 du code civil prévoit que: « Est un produit tout bien meuble, même s'il est incorporé dans un immeuble, y compris les produits du sol, de l'élevage, de la chasse et de la pêche. L'électricité est considérée comme un produit ». Available at: https://www.legifrance.gouv.fr/codes/article_lc/LEGIARTI000032041559/2022-04-26. Accessed on: 02/11/2025.

22- ABED Samira, op. cit., p. 1056.



23- Article 1245-6 du code civil prévoit que: « Si le producteur ne peut être identifié, le vendeur, le loueur, à l'exception du crédit-bailleur ou du loueur assimilable au crédit-bailleur, ou tout autre fournisseur professionnel, est responsable du défaut de sécurité du produit, dans les mêmes conditions que le producteur, à moins qu'il ne désigne son propre fournisseur ou le producteur, dans un délai de trois mois à compter de la date à laquelle la demande de la victime lui a été notifiée.

Le recours du fournisseur contre le producteur obéit aux mêmes règles que la demande émanant de la victime directe du défaut. Toutefois, il doit agir dans l'année suivant la date de sa citation en justice ».

24- Article 3 of Law No. 09-03 of 25 February 2009 relating to consumer protection and the suppression of fraud, Official Gazette of the Algerian Republic, No. 15, issued on 18 March 2009, as amended and supplemented by Law No. 18-09 of 10 June 2018, Official Gazette of the Algerian Republic, No. 35, issued on 18 June 2018.

25- The French legislator defined a defect in a product in Article 1245-2 of the Civil Code as follows: « tout bien meuble, même s'il est incorporé dans un immeuble y compris les produits du sol, de l'élevage, de la chasse et de la pêche. L'électricité est considérée comme un produit ». This provision applies to a defective product, regardless of the purpose of its use, whether personal or professional.

26- Feng J., *Le droit des produits défectueux: une approche euro américaine*, thèse, université de Perpignan, universitat de Girona, Français, 2016, p. 208. See also: ABED Samira, op. cit., p. 1056.

27- VIAL Alexandre, op.cit., p. 103. See also: DUMERY Alexandre, op.cit., pp. 77-78.

28- Xu Jamin, *Tesla's Autopilot System Responsibility Under The California Injury Act*, Boston College of Intellectual Property And Technology Forum, 2017, p. 17. Available at: TESLA_AUTOPILOT_TORT.pdf Accessed on : 16/02/2026.

29- CHRISTODOULOU Hélène, « La responsabilité civile extracontractuelle à l'épreuve de l'intelligence artificielle », *Lexbase Droit privé*, n° 807, France, 2019, p. 10. Available at: <https://hal.science/hal-03349668v1>. Accessed on: 28/01/2026.

30- VIAL Alexandre, op.cit., p. 315.

31- BONNET Adrien, *La responsabilité du fait de l'intelligence artificielle: Réflexion sur l'émergence d'un nouvel agent générateur de dommages*, Mémoire de recherche, Master 2 Droit privé général, université Paris II, 2015, p. 23.

32- VIAL Alexandre, op.cit., p. 100.

33- DUGUÉ Marie, « La responsabilité civile à l'épreuve des voitures autonomes », *Grief*, vol. 71, n°1, 2020, p. 54. Available at: <https://www.cairn.info/revue-grief-2020-1-page-45.htm>. Accessed on: 06/12/2025.

34- Wagner Gerhard, « Robot Liability », Working Paper, No. 2 des Forschungsinstituts für Recht und digitale Transformation (2019). P. 06. Available at: *Wagner Robot Liability Final*. Accessed on : 04/02/2026.

35- EL KAAKOUR Nour, op.cit., p. 65; POUGET Jonathan, op. cit., p. 67.

36- Howells Geraint, David G Owen, *Products liability law in America and Europe*. In: Howells G, Ramsay I, Wilhelmsson T, Kraft D, *Handbook of research on international consumer law*. Edward Elgar Publishing, chap 9, 2009, p. 241.

37- Čerka P., J. Grigienė and G. Sirbikytė, « Liability for damages caused by artificial intelligence », *Computer Law & Security Review*, vol. 31, no. 3, 2015, pp. 376-389. Available at: <https://www.sciencedirect.com/science/article/pii/>. Accessed on: 08/12/2025.

38- Berrig Rahma, « Les Règles de la Responsabilité Contractuelle Selon le Code Civil algérien », *Revue Académique des Etudes Sociales et Humaines*, Vol. 12, N° 01, Section (A) Sciences économiques et droit, université de chlef, 2020, p. 239.

39- Tom Allen and Robin Widdison, « Can computer make contracts ? », *Harvard Journal of law and Technology*, volume 9, N° 1, Harvard law school, cambridge, 1996, p. 26. Available at: <http://jolt.law.harvard.edu> > Accessed on : 13/02/2026.

40- Berrig Rahma, op.cit., p. 240.



- 41- PFEIFER-CHOMICZEWSKA Katarzyna, «artificial intelligence and contractual liability under polish law. Selected issues», *STUDIA PRAWNO-EKONOMICZNE*, T. CXXIV, 2022. Pp. 59–80. Available at: <https://doi.org/10.26485/SPE/2022/124/4> Accessed on: 17/02/2026.
- 42- BENHAMOU Yaniv, FERLAND Justine, *Artificial Intelligence and Damages: Assessing Liability and Calculating Damages*, In: *Leading Legal Disruption: Artificial Intelligence And A Toolkit For Lawyers And The Law*. Giuseppina D'Agostino, Aviv Gaon, Carole Piovesan (Ed.). Montréal: Thomson Reuters - Yvon Blais, 2021. p. 168.
- 43- Ibid.
- 44- Burylo Yuri, « Civil liability for damage caused by artificial intelligence: the modern European approach. *Entrepreneurship* », *Economy and Law*, 6, 2022, pp. 5–11. Available at: <https://doi.org/10.32849/2663-5313/2022.6.01> Accessed on: 17/02/2026.
- 45- Patrick hubbard, and Ronald Motely, « regulation of and liability For risks of physic cal injury From “sophisticated robots” ». Previous reference, Paper for presentation as a work-in-progress at We Robot Conference University of Miami School of Law April 21–22, 2012, pp. 41-42. Available at: [Hubbard_Sophisticated-Robots-Draft-1.pdf](#) Accessed on : 18/02/2026.
- 46- Burylo Yuri, op.cit., p. 7.
- 47- Strict liability, sometimes called absolute liability, is the legal responsibility for damages, or injury, even if the person found strictly liable was not at fault or negligent.
- 48- Pierre Bettremieux, *Easaihistorique et critique sur fondement de la responsabilite civile en droit francais*, these, lille, n° 50, 1921, p. 92.
- 49- Burylo Yuri, op. cit., p. 7.
- 50- This European directive was issued regarding the harmonization and balance of laws, regulations, and provisions among member states concerning producer liability for defective products. See : G. Risso, « Product liability and protection of EU consumers: is it time for a serious reassessment? », *Journal of Private International Law*, vol. 15, no. 1, 2019, pp. 210-233. Available at: <https://doi.org/10.1080/17441048.2019.1579994> Accessed on: 26/01/2026.
- 51- Oertel Christoph, « Strict Liability in the Principles of European Tort Law: The Black Hole and Central Building Site », *JETL* 2024, 15 (1): pp. 20–21. Available at : <https://doi.org/10.1515/jetl-2024-0002> Accessed on: 19/02/2026.
- 52- Nadia Yas, Reema Al Qaruty, Samer Abdel Hadi, Ayesha AlAdeedi, « Civil Liability and Damage Arising from Artificial Intelligence », *Migration Letters*, Volume: 20, No: 6, 2023, pp. 437-438. Available at: www.migrationletters.com Accessed on: 18/02/2026.
- 53- Christoph Oertel, op. cit., p. 22.
- 54- LOYER-LEMERCIER Marie-Julie, « Les risques émergents des nouvelles mobilités: la voiture autonome », *Archives de philosophie du droit*, 2020, pp. 299-307. Available at: <https://www.cairn.info/revue-archives-de-philosophie-du-droit-2020-1-page-299.htm>; Accessed on: 14/12/2025; See also: DUGUÉ Marie, op.cit., pp. 45-59; Viony Kresna Sumantri, « Legal Responsibility on Errors of the Artificial Intelligence-based Robots », *Lentera Hukum*, vol. 6, no. 2, 2019. p. 341. Available at: [Download Legal Responsibility on Errors of the Artificial Intelligence-based Robots](#) Accessed on: 19/02/2026.
- 55- POUGET Jonathan, op.cit., p. 164.
- 56- See Article 176 of the Algerian Civil Code.
- 57- Damage giving rise to liability is divided into two types: material damage and moral (non-material) damage. Material damage consists of bodily injury or harm affecting a financial or economic right or interest of the injured party. Moral damage, on the other hand, does not affect a person's property, but rather their feelings or reputation; it affects a moral interest rather than a financial one.
- 58- See Article 182 bis of the Algerian Civil Code.
- 59- Maria Assunta Cappeli, *regulation on safety and civil liability of intelligent autonomous robots: the case of smart cars*, Ph. D thesis, universita degli studidi Trento, 2014, p. 117.
- 60- POUGET Jonathan, op.cit., p. 164.
- 61- Ibid., p. 166 et 169.



62- BONNET Adrien, op.cit., p. 45.

63- POUGET Jonathan, op.cit., p. 184.

64- KNETSCH Jonas, Le droit de la responsabilité et les fonds d'indemnisation: Analyse en droits français et allemand, Doctorat, Panthéon Assas, 2011, p. 53.

65- KNETSCH Jonas, Le droit de la responsabilité et les fonds d'indemnisation: Analyse en droits français, Bruyant, Belgique, 2015, p.120.

Bibliography List setting:

-First: legal texts

1- Order no. 75-58 of 26 September 1975 on the Civil Code, A.R.O.J. no. 78 of 30 September 1975, as amended and supplemented.

2- Code civil (Ordonnance n° 2016-131 du 10 février 2016) Available at: https://www.legifrance.gouv.fr/codes/article_lc/LEGIARTI000032041559/2022-04-26.

3- Law No. 09-03 of 25 February 2009 relating to consumer protection and the suppression of fraud, Official Gazette of the Algerian Republic, No. 15, issued on 18 March 2009, as amended and supplemented by Law No. 18-09 of 10 June 2018, Official Gazette of the Algerian Republic, No. 35, issued on 18 June 2018.

4- The Egyptian Civil Code. Available at: Code civil égyptien en arabe, en français et en anglais/

-Second: books

1- Azeng Danpan, Tianyong Hao, Daoqiang zhang, Yiyu shi, xiaowei song, Human Brain and Artificial Intelligence, Springer Ed., International workshop, HBAI, Held in conjunction with JJCAI, Macao, china, August 12, 2019.

2- BENHAMOU Yaniv, FERLAND Justine, Artificial Intelligence and Damages: Assessing Liability and Calculating Damages, In: Leading Legal Disruption: Artificial Intelligence And A Toolkit For Lawyers And The Law. Giuseppina D'Agostino, Aviv Gaon, Carole Piovesan (Ed.). Montréal: Thomson Reuters - Yvon Blais, 2021.

3- DANJAUME Géraldine, La responsabilité du fait de l'information, JCP, éd. G., 1996.

4- Howells Geraint, David G Owen, Products liability law in America and Europe. In: Howells G, Ramsay I, Wilhelmsson T, Kraft D, Handbook of research on international consumer law. Edward Elgar Publishing, chap 9, 2009.

5- KNETSCH Jonas, Le droit de la responsabilité et les fonds d'indemnisation: Analyse en droits français, Bruyant, Belgique, 2015.

6- Sternberg Robert J., Conceptions of the nature of intelligence, Cambridge University Press., 2003.

-Third: memory and thesis

1- BONNET Adrien, La responsabilité du fait de l'intelligence artificielle: Réflexion sur l'émergence d'un nouvel agent générateur de dommages, Mémoire de recherche, Master 2 Droit privé général, université Paris II, 2015.

2- EL KAAKOUR Nour, L'intelligence artificielle et la responsabilité civil délictuelle, Mémoire pour l'obtention du Diplôme d'études approfondies en droit interne et international des affaires, facultés de droit et sciences politiques et administratives, université Libanaise, 2017.

3- Feng J., Le droit des produits défectueux: une approche euro américaine, thèse, université de Perpignan, universitat de Girona, Français, 2016.

4- KNETSCH Jonas, Le droit de la responsabilité et les fonds d'indemnisation: Analyse en droits français et allemand, Doctorat, Panthéon Assas, 2011.

5- Maria Assunta Cappeli, regulation on safety and civil liability of intelligent autonomous robots: the case of smart cars, Ph. D thesis, universita degli studi di Trento, 2014.

6- M. Guillaume, L'elevation Des Robots A La Vie Juridique, thèse, Doctoral School of Law and Political Science, Toulouse, 2016.

7- Pierre Bettremieux, Essai historique et critique sur fondement de la responsabilité civile en droit français, these, lille, n° 50, 1921.



8- POUGET Jonathan, La réparation du dommage impliquant une intelligence artificielle. Thèse pour le doctorat en droit, Faculté de droit et de sciences politiques, Université Aix Marseille, France, 2019.

9- VIAL Alexandre, Systèmes d'intelligence artificielle et responsabilité civile: droit positif et proposition de réforme, Thèse Doctorat de droit privé et sciences criminelles, Université Bourgogne Franche-Comté, France, 2022.

-Fourth: Articles

1- Archambault L. et zimmermann L., « repairing damages caused by artificial intelligence: french law needs to evolve », GAZETTE DU PALAIS – TUESDAY MARCH 6th, 2018 - N. 9, pp. 16-18.

2- ABED Samira, « civil liability for the use of the artificial intelligence system », RUSSIAN LAW JOURNAL Volume XIII (2025), pp. 1045-1058. Available at : CIVIL LIABILITY FOR THE USE OF THE ARTIFICIAL INTELLIGENCE SYSTEM Accessed on: 12/02/2026.

3- Berrig Rahma, « Les Règles de la Responsabilité Contractuelle Selon le Code Civil algérien », Revue Académique des Etudes Sociales et Humaines, Vol. 12, N° 01, Section (A) Sciences économiques et droit, université de chlef, 2020, pp. 238-245.

4- Burylo Yuri, « Civil liability for damage caused by artificial intelligence: the modern European approach. Entrepreneurship », Economy and Law, 6, 2022, pp. 5–11. Available at: <https://doi.org/10.32849/2663-5313/2022.6.01> Accessed on: 17/02/2026.

5- Cédric Coulon, Du robot en droit de la responsabilité civile: à-propos des dommages causés par les choses intelligentes, Revue Resp-civ, 2016, p.17.

6- Čerka P., J. Grigienė and G. Sirbikytė, “Liability for damages caused by artificial intelligence”, Computer Law & Security Review, vol. 31, no. 3, 2015, pp. 376-389. Available at: <https://www.sciencedirect.com/science/article/pii/>. Accessed on: 08/12/2025.

7- CHRISTODOULOU Hélène, « La responsabilité civile extracontractuelle à l'épreuve de l'intelligence artificielle », Lexbase Droit privé, n° 807, France, 2019, pp. 1-11. Available at: <https://hal.science/hal-03349668v1>. Accessed on: 28/01/2026.

8- DUGUÉ Marie, « La responsabilité civile à l'épreuve des voitures autonomes », Grief, vol. 71, n°1, 2020, pp. 45-59. Available at: <https://www.cairn.info/revue-grief-2020-1-page-45.htm>. Accessed on: 06/12/2025.

9- DUMERY Alexandre, « La capacité du droit de la responsabilité civile à indemniser les dommages causés par l'intelligence artificielle », Revue économique, n° 1, Vol. 76, 2025, pp. 63-85. Available at : <https://shs.cairn.info/revue-economique-2025-1-page-63?lang=fr> Accessed on : 19/02/2026.

10- LOYER-LEMERCIER Marie-Julie, « Les risques émergents des nouvelles mobilités: la voiture autonome », Archives de philosophie du droit, 2020, pp. 299-307. Available at: <https://www.cairn.info/revue-archives-de-philosophie-du-droit-2020-1-page-299.htm>; Accessed on: 14/12/2025.

11- Michael Haenlein and Andreas Kaplan Lewis, « A Brief History of Artificial Intelligence : On the Past, Present, and Future of Artificial Intelligence », California Management Review, The Regents of the University of California, 2019, pp. 1-10. Article reuse guidelines: <https://www.researchgate.net> › Accessed on: 22/02/2026.

12- Nadia Yas, Reema Al Qaruty, Samer Abdel Hadi, Ayesha AlAdeedi, « Civil Liability and Damage Arising from Artificial Intelligence », Migration Letters, Volume: 20, No: 6, 2023, pp. 430-446. Available at: www.migrationletters.com Accessed on: 18/02/2026.

13- Oertel Christoph, « Strict Liability in the Principles of European Tort Law: The Black Hole and Central Building Site », JETL 2024; 15 (1), pp. 4–30. Available at : <https://doi.org/10.1515/jetl-2024-0002> Accessed on: 19/02/2026.

14- Risso G., « Product liability and protection of EU consumers: is it time for a serious reassessment? », Journal of Private International Law, vol. 15, no. 1, 2019, pp. 210-233. Available at: <https://doi.org/10.1080/17441048.2019.1579994> Accessed on: 26/01/2026.

15- PFEIFER-CHOMICZEWSKA Katarzyna, «artificial intelligence and contractual liability under polish law. Selected issues», STUDIA PRAWNO-EKONOMICZNE, T. CXXIV, 2022. Pp. 59–80. Available at: <https://doi.org/10.26485/SPE/2022/124/4> Accessed on: 17/02/2026.



16- Tom Allen and Robin Widdison, « Can computer make contracts ? », Harvard Journal of law and Technology, volume 9, N° 1, Harvard law school, cambridge, 1996, pp. 25-52. Available at : <http://jolt.law.harvard.edu> › Accessed on : 13/02/2026.

17- Viony Kresna Sumantri, « Legal Responsibility on Errors of the Artificial Intelligence-based Robots », Lentera Hukum, vol. 6, no. 2, 2019. pp. 337-352. Available at: Download Legal Responsibility on Errors of the Artificial Intelligence-based Robots Accessed on: 19/02/2026.

18- Wagner Gerhard, « Robot Liability », Working Paper, No. 2 des Forschungsinstituts für Recht und digitale Transformation (2019), p. 1-25. Available at: Wagner Robot Liability Final. Accessed on : 04/02/2026.

-Fifth: Forum works

1- Patrick hubbard, and Ronald Motely, « regulation of and liability For risks of physical injury From “sophisticated robots” ». Previous reference, Paper for presentation as a work-in-progress at We Robot Conference University of Miami School of Law April 21–22, 2012, pp. 1-58. Available at: [Hubbard_Sophisticated-Robots-Draft-1.pdf](#) Accessed on : 18/02/2026.

2- Xu Jamin, Tesla's Autopilot System Responsibility Under The California Injury Act, Boston College of Intellectual Property And Technology Forum, 2017, pp. 1-22. Available at: [TESLA_AUTOPILOT_TORT.pdf](#) Accessed on : 16 /02/2026.

-Sixth: Websites

1- Arrêt Bourquin, n° 87-82.265 du 12 Janvier 1989, Cour de cassation, chambre criminelle, Publié au Bulletin. Available at: <https://www.courdecassation.fr>

2- Yann Rozec, Le marché des Drones militaires toujours Florissant, Décembre 2013, Available at: Le marché des drones militaires toujours florissant, par Yann Rozec (Le Monde diplomatique, décembre 2013). Accessed on: 30/11/2025.