

AI Risk Insurance: Comprehensive Protection and Future Sustainability



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Abstract

The world is currently witnessing significant development in artificial intelligence systems across various sectors, providing many benefits. However, this development is accompanied by an increase in the risks and damages resulting from it, but this development is accompanied by an increase in the risks and damages that result from it, and therefore it has become necessary to confront these risks by repairing the damages that result from them through compensation, which is considered the impact resulting from the consequence of liability. Civilian. However, the traditional system of civil liability is often unable to address the challenges and risks posed by artificial intelligence systems. This is due to the continuous development of these systems and the complexity of the damages resulting from them, which requires resorting to more protective means such as the insurance system and the compensation funds system.

Keywords

Intelligence;
Insurance industry;
Risks;
compensation;
Funds,
Challenges.

الكلمات المفتاحية

ذكاء،
صناعة تأمين،
مخاطر،
تعويض،
صناديق،
تحديات.

تأمين مخاطر الذكاء الاصطناعي: حماية شاملة واستدامة مستقبلية

ملخص

يشهد العالم حالياً تطوراً كبيراً في أنظمة الذكاء الاصطناعي عبر مختلف القطاعات، مما يوفر العديد من الفوائد. ومع ذلك، يصاحب هذا التطور تزايد في المخاطر والأضرار الناتجة عنه، إلا أنه هذا التطور يصاحبه زيادة في المخاطر والأضرار التي تنجم عنها، ولذا أصبح من الضروري التصدي لهذه المخاطر من خلال جبر الأضرار التي تنشأ عنها بواسطة التعويض الذي يعتبر الأثر المترتب على ترتب المسؤولية المدنية. لكن، النظام التقليدي للمسؤولية المدنية غالباً ما يعجز عن مواجهة التحديات والمخاطر التي تفرضها أنظمة الذكاء الاصطناعي. وذلك بسبب التطور المستمر في هذه الأنظمة وتعقيد الأضرار الناجمة عنها، الأمر الذي أصبح يستدعي اللجوء إلى وسائل أكثر حماية كنظام التأمين ونظام صناديق التعويض.

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Introduction:

The effects of the spread of information technology are widely felt in all social, political, economic and cultural aspects. These tremendous developments in the field of technology and science, and the great explosion in knowledge, were able to bring about radical transformations in the methods of work and technologies used, which greatly affected the development of services and entry into the new knowledge economy. Hence the importance of this study in analyzing and evaluating the effects and risks arising from Using modern technology and artificial intelligence, the role of insurance in addressing these risks. The research deals with identifying potential risks of artificial intelligence and information technology that may threaten information security in all its aspects. In today's era, a balanced approach is essential to take advantage of the benefits of technology while maintaining security and privacy and addressing the challenges that stand in the way of progress.

In the current era of digital transformation, protecting data and information circulating across digital networks is of utmost importance, and with the rapid developments in technology, the challenge is increasing in addressing potential risks that may threaten this data. Therefore, innovative preventive measures must be taken to ensure the protection of digital privacy and security, as this requires the use of advanced technologies and smart solutions to confront emerging challenges. In this context, insurance plays an essential role in covering risks related to data and information, ensuring its continuity and protecting it from negative threats. By relying on appropriate insurance policies, effective solutions can be provided to protect data and information from hacks and violations, and to ensure their safety and stability in a changing and evolving digital environment.

Today we face great challenges with the rapid progress in the field of artificial intelligence and information technology. The dominance of some of the few large social media platforms raises concerns about their control over public opinion, while digital diseases such as cyber threats and the spread of harmful material online portend greater challenges. Concern is also increasing about privacy invasions and threats that may affect our individual rights. Therefore, it is necessary to conduct comprehensive studies to understand and evaluate these risks, and develop an effective framework to address them and protect digital security and privacy for all.

Study problem:

In light of the above, we can pose the following problem: **Can the insurance industry play an influential role in addressing the increasing risks related to artificial intelligence?**

Within this main problem, sub-questions include:

What are the most prominent threats that artificial intelligence poses to the insurance industry?

What new opportunities can artificial intelligence provide insurance companies?

How can insurance companies use AI technologies to improve their operations and increase their efficiency?

What are the best practices that insurance companies can follow to provide innovative insurance solutions for AI risks?

How can insurance companies improve their analysis and evaluation processes to understand and estimate the risks associated with AI technologies?

What factors should be considered when developing insurance policies for cutting-edge technology such as artificial intelligence?

Study hypotheses:

To answer the problem at hand, we have formulated hypotheses that can be proven or denied through the content of the research, which are as follows:

There is a positive relationship between the insurance industry's use of innovative solutions and addressing AI risks.

Advances in the insurance industry and valuation technologies are reducing the risk of AI-related losses.

Insurance policies and government regulation play an important role in enhancing response to AI risks.

Economic and legal factors affect the insurance industry's efficiency in dealing with AI risks.

Absolutely avoiding the risks of artificial intelligence systems is impossible to achieve, so organizations, regardless of their activities, must follow specific methods or techniques to manage them.

Information sharing and collaboration between insurers and technology companies can enhance AI risk response.

Objectives of the study:

The objectives of the study are manifested in:

Identify the risks resulting from artificial intelligence technology.

Identify preventive measures to avoid risks threatening organizations in the field of their information security using artificial intelligence technology.

Learn how to manage artificial intelligence risks.

Identify risks associated with insurable AI technology.

Study methodology:

To answer the central question and sub-questions and choose the validity of the proposed hypotheses, we relied on the descriptive approach as it is the most appropriate approach to the nature of the topic through our listing of the various concepts related to the topic.

Study plan:

We divided the research into two axes, relying on the binary division methodology used in academic research and studies according to the following:

The first axis: basic concepts about artificial intelligence and its risks.

The second axis: insurance requirements from the increasing risks of artificial intelligence technology.

The first axis: basic concepts about artificial intelligence and its risks

In this guide, we will attempt to define the concept of artificial intelligence through its definition and importance in the applied field (**first**), and then we will review the most important risks and threats it poses to companies and individuals (**second**).

First: The concept of artificial intelligence and its importance

We will first address the concept of artificial intelligence (1), and then we will look at the importance it has in the applied field (2).

1-The concept of artificial intelligence :

Historically, humans have continued to explore the mind, its processes, and methods of thinking and reasoning since ancient times. Throughout the ages, as philosophers and scientists have dealt with the concept of human intelligence and its nature with great variation, there has been no consensus on a specific definition of intelligence. Rather, there have been wide differences over this concept.

For some people, intelligence means the ability to understand things and acquire knowledge, while others see it as the ability to think, immediately understand things, and carry out tasks skillfully and automatically. The first point is related to the characteristics of human intelligence, while the second opens the door wide to the possibility of the existence of intelligence outside humans.

Here fundamental questions arise, such as: Can non-humans think? Can this human characteristic be transferred to machines? What about artificial intelligence? These and other questions have sparked widespread controversy over the past five decades, pushing the science of artificial intelligence to emerge as an independent field.

Initially, some people viewed AI as just a branch of engineering, while others saw it as a system that mimics human thinking. Several definitions have been found for it, including:

It is that branch of computer science through which it is possible to create and design computer programs that mimic the methods of human intelligence so that the computer can perform some tasks instead of humans, which require thinking, understanding, hearing, speaking, and movement (1996، الشرفاوي).

Artificial intelligence is viewed as a system related to the design and application of algorithms to analyze and learn from the interpretation of data. It coordinates and organizes several techniques for learning, discovering shapes, logic and probability theories. Artificial intelligence is an attempt to develop computer technology so that it becomes able to perform actions similar to those performed by humans, with Ability to learn, complete physics assignments, simulate human experience and decision making (Shorouq Fathi Eletter et al, 2010).

It is also known as the science that is concerned with understanding the nature of human intelligence using computer programs that are able to simulate intelligent human behavior. It also means the ability of computer software to solve a

problem or make decisions or based on a description of situations, as the program itself finds the method that must be followed to solve the problem (1993، بونيه). In fact, there are four approaches or approaches to understanding artificial intelligence in a correct and comprehensive manner, and they are the most unanimous and agreed-upon trends known among researchers and academics, as follows:

Acting Humann Approach: This approach was summarized in the choice of Turing, who proposed as a practical, satisfactory, and adequate definition of intelligence instead of specifying a long list of controversial criteria about the qualifications that must be met to judge a certain behavior as intelligent or not (Norvig, 2003). The test revolves around programming the computer in a way that makes it talk to a person in a way that the latter cannot differentiate. Between a computer and a natural person, this test consists of two stages: the first establishes a dialogue between a man and a woman and a third person interviewing them, provided that the communication takes place via a computer and in a separate place, and the interlocutor must get to know the man and woman by asking a set of questions, the man and woman are also asked to mislead and deceive that person through a false atmosphere so that the interviewer does not recognize them. In the second stage, the man is replaced by a computer that also tries to mislead the interviewer and prevent him from recognizing him. The focus of this test is not on providing correct answers as much as it is on providing answers similar to those. Provided by a natural person, the computer passes the test if the interviewer cannot differentiate between the machine and a natural person through the questions asked and the answers provided (Negnevitsky, 2005).

It should be noted that not every computer can pass the test and must be programmed in a specific way and have several capabilities, including: control of natural language mechanisms, automatic reasoning of knowledge by using stored knowledge to answer posed questions and draw new results, the ability to learn and perceive. And the vision (Norvig, 2003). So, according to this approach, judging the intelligence of a machine depends on the extent to which it performs a certain task in a way that is similar to a human being. But do we expect the machine to perform slow or sometimes incorrect mathematical calculations, as is the case with a human being?

Thinking Humanly approach: Designing machines that think in a way that is similar to the way a human being thinks requires a deep understanding of the latter and a deep study of its smallest details, by searching for the motivations that motivate their thoughts and trying to capture them, while paying attention to psychological experiments and focusing on them, which will enable the construction of a complete theory of human thinking embodied in works. Both Simon and Newell's proposed problem-solving software called GPS, General Problem Solver, focus on imitating humans in dealing with their problems rather than on the ideal solution. According to this approach, artificial intelligence is the ability of a machine to think in a manner similar to a human being.

Approach thinking rationally: This approach is based primarily on logical thinking and what the philosopher Aristotle said. If we accept that Aristotle is a man and that all men are fleeting, then Aristotle is fleeting, which is the essence of logical thinking. In the sixties of the twentieth century, some scientists, relying on the laws that govern logical thinking, were able to build models capable of solving logically solvable problems.

The rational action approach: This approach relates to what is called the rational agent, which is expected to perform tasks that exceed the ability of ordinary programs, such as working under self-monitoring, perceiving and understanding the surrounding environment, and adapting to change. It also works to reach the best results in situations of uncertainty, which means that intelligence According to this perspective, artificial intelligence is the science that investigates how to build rational units capable of performing tasks that are supposed to be specific to humans only.

In general, the multiplicity of approaches and approaches reflects the divergence of views on what artificial intelligence is and what it should be. Whatever the case may be, it contributes to the diversification of the fields of this science and its inclusion in different fields that attempt to delve into human intelligence and understand it, and the most important thing is to simulate it and transfer it correctly to the machine.

2-The importance of artificial intelligence:

Artificial intelligence plays an important role in benefiting from human expertise and transferring it to smart systems in multiple ways. For example, artificial intelligence can provide user interfaces based on human language instead of complex programming languages, which makes it easier for various segments of society to interact with technology, including people with disabilities (2016، صورية، شنبی).

Among the main applications of artificial intelligence are smart cars, drones, and robots. This technology enables devices to work independently without direct human intervention, which contributes to the development of many fields of industry, such as the production of cars and aircraft, and improving performance in dangerous work such as mine exploration and repair of electrical installations.

One of the advantages of artificial intelligence is that it is designed to increase and raise the level of productivity and effectiveness without the need for human natural senses. Artificial intelligence is based on improved systems, self-learning, and the ability to solve problems logically. It is also characterized by its ability to learn from experiences and develop itself over time, making it capable of tackling a variety of problems and tasks (2005، النور).

The uses of artificial intelligence systems do not stop only in industrial sectors, but extend to many fields such as security and police, where it can be used to identify people and analyze forensic evidence quickly and effectively. It is also used to analyze data and make decisions in companies and institutions, improve productivity and reduce costs.

On the other hand, artificial intelligence raises some challenges and issues, such as the threat of losing some human jobs as a result of its applications in various industries. It also raises concerns about data privacy and security, and its impacts on human work and the economy. However, these challenges can be addressed by establishing appropriate policies and regulations to ensure the proper, responsible and effective use of artificial intelligence systems.

Second: Threats and risks of artificial intelligence

Artificial Intelligence technology has become more capable and effective, as its models can create texts, images, and video that are difficult to distinguish from human-made content. Today, we see many of these powerful models and many of their useful applications, in many fields at many levels, and how they have now become a station. To engage in strong investment competition between many countries of the world, whether economic or military defense, but the challenges and risks of this must be taken into account. When artificial intelligence becomes more advanced, it may pose a great danger whose negative effects cannot be known in time, nor it can often be countered (2021, الهادي).

There are several ways in which large-scale risks can be created by artificial intelligence technologies, especially the potential risks related to rapid progress, which has become one of the most important topics currently, and like other techniques and technology, it is a very useful technology, but it may have serious risks and effects for reasons and factors. Several, including the desire for influence or control, or due to competitive pressures, or other factors (2017, خليفة). Perhaps among these risks are :

- The difficulty of achieving complete control over the risks of artificial intelligence, because they can develop rapidly and unexpectedly and exceed human expectations for them, and this may lead to unwanted, harmful or dangerous actions or decisions, such as implanting smart electronic chip technologies in the brains of human beings from Neuralink, And the fears and risks resulting from this.

- Artificial intelligence can also be used in various criminal and deceptive activities, such as electronic phishing, cyber intrusions, media disinformation, manipulation of economic markets, and other illegal and unethical activities, which may escalate crime and complicate efforts to combat it. Examples include the increase in big data, which can be exposed to hacking or illegal exploitation, and this will create a clear threat to privacy and security.

- In addition, the deliberate overuse of artificial intelligence technologies, especially in sensitive vital systems, could pose a threat to public security and safety. Also, the loss or lack of human control over many processes and decision-making as a result of this dependence may lead to the emergence of multiple errors or actions that are inappropriate for their owners, unexpected, or have difficult-to-obtain solutions.

- The increasing spread of artificial intelligence applications in various economic, social and political sectors also leads to reducing the reliance on human employment in the work sector, especially since robots, in light of the independence they enjoy in making decisions, have now become able to perform many of the functions that were previously performed by humans (2021, الوهاب, شادي عبد). The "Future Jobs 2040" report stated that many existing jobs will disappear in the future, as automation will have an impact on the current employment situation, and here one can only ask: Can we provide alternatives for the millions of humans who will be replaced by robots and similar automated systems? We will have the opportunity to renew new roles for these people (2021, الكعبي). On the other hand, the report stated that there will be more than 157 vacant jobs until the year 2040. According to the McKinsey Global Institute study, there are more than 800 million workers around the world who will lose their jobs, which is equivalent to a fifth of the workforce. And in this regard as well. A study published in the World Economic Forum in 2018, conducted by researchers from the University of Oxford, revealed that 1.4 million jobs in the United States of America are threatened by new technologies by 2026, and that 47% of jobs are threatened by turning into computer-based jobs. Automated (2020, نزمين, مجدي).

Research centers and non-profit organizations specializing in the field of artificial intelligence have begun to think about the risks and challenges associated with its technologies and systems. The Center for Artificial Intelligence Safety in San Francisco, California, despite efforts to identify and analyze a variety of these risks, the use of artificial intelligence technologies and systems carries significant impacts, and among these impacts is the dissemination of potential risks on websites, such as the risk of developing destructive artificial intelligence systems such as chemical and biological weapons. With the aim of achieving influence and control, which threatens security and stability.

Concerned centers and organizations have responded to these challenges by developing new standards and methods to enhance the safety of artificial intelligence systems. It has established advanced infrastructures and developed strategies to ensure safety in the field of artificial intelligence and its use in a safe and effective manner. To address these challenges,

laws and policies must be put in place that regulate these technologies and ensure their governance to avoid risks. These regulations and laws must also be able to be updated periodically. In the United States, which is considered a leader in the field of artificial intelligence, the White House Office of Science and Technology Policy has updated its national strategic plans for research and development in artificial intelligence systems, with the aim of maintaining leadership and ensuring that these technologies are used safely and effectively.

As the risks of artificial intelligence increase, it is necessary to develop laws, policies and systems to prevent these challenges and risks, direct these systems appropriately and ensure their governance to avoid the aforementioned risks. These regulations and laws must be able to be updated and developed periodically, as was done by the White House Office of Science and Technology Policy in the United States of America, which updated the National Strategy for Research and Development in the field of artificial intelligence technologies (2023, (العضاضي, محمد بن عبد الله), this is for the first time since 2019, in light of which the main priorities and objectives of federal investments in research and development in the field of artificial intelligence were determined, and through it the importance of managing and preventing threats related to artificial intelligence to serve the public interest was emphasized. Protecting rights and safety, and promoting ethical values, this update included a deep understanding of the ethical, legal and social implications of artificial intelligence systems, in addition to applying strict standards to ensure the safety and security of its applications. It is also important to measure and evaluate these systems using uniform standards to ensure maximum efficiency and effectiveness. It also included the need to harness artificial intelligence to improve public services and their quality, and to develop a principled, coordinated and robust approach to international cooperation in artificial intelligence research (2023, (العضاضي, محمد بن عبد الله).

Since artificial intelligence technologies can be circulated via the Internet, there is a major role and challenge for the international body and governments to establish a robust mechanism and enact local regulations and laws to control, follow up and monitor their use as preventive solutions against their negative effects. Addressing these risks also requires that there be international cooperation to develop clear frameworks, laws, and ethics to deal with the development of artificial intelligence technologies, so that there is a balance between the services provided to society by these technologies and systems, in parallel with achieving the necessary protection from their potential risks. In recent years, artificial intelligence and robotics technologies have witnessed amazing advances, which are expected to lead to changes in human interaction with the world around them. Additive manufacturing and 3D printing technologies have been developed, in addition to the use of programmable drones, and it is expected that this development will expand to include self-driving cars, smart agricultural equipment, and advanced surgical robots, with the increasing spread of robots in people's daily lives and in various industries, we must realize that new challenges and risks may arise. Among these challenges is a change in the perception of risks, as these technologies may require new ways to confront these emerging risks. These developments may also require new insurance for customers.

The second axis: insurance requirements against the increasing risks of ai technology

Given the inability of the traditional rules of civil liability in practice to compensate for the damage that arises from intelligent systems, as the injured person often cannot find a party that can guarantee him compensation, and given the spread of artificial intelligence devices in many fields, they have become a great danger to individuals, therefore Start searching for other means away from the idea of civil liability to ensure compensation, the most prominent of which is the insurance system through insurance companies and the basic role that they can play in this regard (first). Then we review the most important difficulties and problems that hinder the process of insurance against artificial intelligence risks and what they are. The most important solutions for this (second).

First: The role of insurance companies in confronting the risks of artificial intelligence

The idea of liability to compensate AI victims faces significant challenges, as determining who is responsible for damages can be very difficult. With the widespread use of artificial intelligence programs in many fields, this spread has begun to pose a clear threat to many in terms of losing their jobs. In light of the increasing volume of electronic crime, as the resulting economic losses were estimated internationally at about \$3 trillion in 2015, and most expectations confirmed its increase in the coming years, it has become necessary to find solutions to protect individuals and companies from the risks of using this technology (, 2022, (مصطفى أبو مندور عيسى موسى).

Artificial Intelligence systems risk insurance is a new coverage, and it aims to protect companies and individuals who engage in certain activities using technology from the risks resulting from this use, as well as protecting those dealing with the Internet from various risks based on the use of that network. More broadly, this insurance is a way to protect IT infrastructure and its activities from potential risks.

It is noted that insurance against the risks of artificial intelligence systems is due to the absence of historical data on the risks of non-traditional electronic attacks, such as incidents resulting from hackers controlling autonomous driving systems in cars and networks of medical devices connected to the Internet, as it is difficult to provide insurance for products connected to the Internet due to their novelty and limited knowledge of economic losses. And personal injuries resulting from them, which in this type of insurance requires the provision of data and statistics about losses and how to price. In order to achieve this fundamental goal, countries seek to establish standards to ensure the necessary legal

protection for electronic security in Internet devices, Insurance practice and legal standards for dealing with data, and cooperation on the issue of assigning liability to a specific party for losses resulting from risks caused by artificial intelligence, as a result of the emergence of modern technology, Internet devices and related services (محمد سعد أحمد محمد، (2021).

Indeed, some companies have begun preparing insurance contracts for these risks. Indeed, some companies have begun to prepare insurance contracts for these risks, such as the British insurance company INSURANCE ENGINEERING HSB, which prepared an insurance contract against electronic piracy and the risks associated with it, including work stoppages and damage to the reputation of the institution whose business volume does not exceed 15 million US dollars, as well as Medium enterprises whose turnover does not exceed 75 million US dollars. The insurance contract created by the company covers the main risks, such as repair expenses that are the responsibility of the organization if its information base is hacked, and electronic fraud. Civil liability arising from hacking the organization's electronic system. Cessation of work due to the information base being hacked, including harm to the organization's reputation (الاتحاد المصري للتأمين).

Insurance companies take the initiative to pool a variety of risks based on statistical laws and clearing procedures, based on rigorous scientific foundations. This enables it to meet its obligations when the risk occurs to the insured, using the premiums paid by the insured. Therefore, insurance can only take place within the framework of a homogeneous group of risks within an organized project based on specific scientific standards (الدين، 1991). Insurance is based on calculating probabilities, with the aim of identifying The chances of a risk occurring within a certain period of time. Through statistics and the laws of population, the probability of risks occurring when they occur accidentally can be estimated. This estimate enables the insurer to determine his obligations and the risks he must bear, in addition to determining the amount of premium he must pay regularly (نصر، محمد، 2015).

A side of jurisprudence believes that insurance against artificial intelligence risks falls under the umbrella of engineering insurance, which provides the necessary cover for the installation of machines and computers and their experimental operation, and extends to the malfunctions that may occur from the actual operation of these machines, and this is due to the extension of the insurance cover desired by the person for whom it is insured, and thus The insurance company will pay adequate and appropriate compensation to the executing inventors (the insured persons) if the risk that it insured against is realized, which will ensure the continuation of the production of artificial intelligence without stopping (رافد محمد و آخر، 2008) Insurance provides protection for engineering installation risks related to information storage, assembly, and installation procedures, Including the period of testing the machines and starting them in the factory. The policy provides comprehensive coverage against all types of potential accidents. Engineering insurance also includes the insurance policy covering all types of computers and electronic devices, including microcontrollers, electronic information processing, communications devices, devices for medical use, electronic panels...etc. This insurance also covers sudden, unexpected physical damage resulting from electronic devices, increased costs, and business expenses (طرفة شريقي، 2008).

Due to the emergence of smart cars, this led to the emergence of new dangers, such as cyber elevators, which were added to the list of dangers they cover. This danger is represented by remote hacking of the automated information machines inside smart cars (جويده عمر، 2018). In this context, the French insurance company Allianz offered in 2016 a special insurance contract for smart cars, which covers the risks of Internet crimes, especially attempted theft by hacking into the car's computer automation programs, and provides the best technical assistance in the event of data theft or in the event of the failure of the program that used it. Placed in the car. The insurance also covered disputes that the insured faced with the smart car manufacturer. The emergence of smart cars has also led to the emergence of new insurances. While the insurer used to conclude a contract with the consumer, which is a personal insurance contract with the individual who owns the car, the insurer now concludes a single insurance contract with a group of cars, with one customer, which is the automobile industry corporation, system companies. Software. Such as what the American company Tesla did, where it contracted with the French insurance company AXA to cover the risks arising from smart cars, and the cost of insurance is included in the price of the car (bonne-assurance.com, s.d.) The United Kingdom also proposed an insurance contract called second insurance, which is a contract that protects the driver when he drives the car. The smart car itself and when he drives it self-driving. This contract reduces the procedures, but it is costly for the insured.

Second: Problems of insurance against artificial intelligence risks and their solutions

Although insurance has a vital role in dealing with the risks of artificial intelligence systems, such as providing protection against cyberattacks and keeping organizations and individuals safe online, insurance companies face significant challenges in estimating the risks associated with multiple and complex robots. Estimating losses caused by this new technology is difficult due to its complexity, which sometimes leads to unclear liability and insurance claims. Not all of these problems can be successfully addressed by imposing new legal fees on producers and buyers, as happened with drones in Italy (Bertolini, 2016). In practice, this may exacerbate the problem as well as delay the adoption and deployment of robotic devices (عبد الرزاق وهبة، 2020). If insurance is to play an essential role in transferring technology to market and encouraging the emergence of new industries, this requires effective methods for assessing various risks, including psychological and physical risks, related to robotics technologies. Basic conditions must be established for the

development of the insurance industry specializing in robotics, which contributes to the creation of a new insurance market that effectively manages advanced industries exposed to technical risks.

The European Parliament proposed the necessity of establishing a compulsory insurance system (Parlement européen, 2020), allowing compensation for those harmed by the use of artificial intelligence technologies, by analogy to the insurance system for liability resulting from car accidents, where the company that produces artificial intelligence, if it wishes to register the intelligence with the relevant authorities, is obligated to submit an insurance document. Compulsory, which allows potential compensation amounts to be covered, whether by the producing company or by the insurance company, if the producing company does not have sufficient capacity to pay the compensation or goes bankrupt (2021, مجاهد, محمد احمد). Compulsory insurance, as previously mentioned, thus covers all risks and damages likely to occur as a result of the use of highly dangerous artificial intelligence technologies (Anne Meyer Heine, Jean-Claude Escarras, 2019). This is the impact of automatically adopting liability rules on the activity of all stakeholders in the manufacture, development, and use of strong, independent, highly dangerous artificial intelligence, Some confirm (Thierry Daups, 2017):

Compulsory insurance, as previously explained, in the face of the risks and threats of artificial intelligence, results in several advantages, namely providing the necessary compensation to compensate for damages arising from smart applications. It also works to distribute financial risks between those responsible for these smart systems and insurance companies, which will be It has a significant impact on its development, increasing its spread, and making reliance on it safer for all those dealing with it. In addition to achieving several mutual advantages for insured and injured companies. If the operator of the AI systems, whether a user, manufacturer or developer, is secured, in compensating individuals affected by damages that may occur due to these technologies, the insurance company is given the ability to represent those affected in civil lawsuits against other parties responsible for the same damages. This enhances the double benefit for the operator and the injured party alike, as it contributes to accelerating the compensation process for the injured party and allows the insurance company to request compensation from the responsible party in turn (Thierry Daups, 2017).

The European Parliament also proposed the establishment of a fund to compensate those affected by systems and artificial intelligence that would work in parallel with the compulsory insurance system (parlement européen, 2017), to avoid the possibility of the lack of financial capacity of the manufacturer, developer, user, or owner of artificial intelligence, or its bankruptcy, or failure to determine who is responsible for the damage (Donovan Méar, 2019-2020). Hence, the main purpose is The Fund was established to ensure that the injured person receives compensation in the absence of an insurance policy for artificial intelligence (2021, محمد سعيد المشد). The Fund can also cover some exceptional cases in which artificial intelligence systems - uninsured - that have not yet been included by Parliament in high-risk systems cause accidents. Harm to others.

All parties producing and benefiting from artificial intelligence contribute to financing this fund, by deducting a portion of the profits of companies working in artificial intelligence technologies for the benefit of the fund (Anne Meyer Heine, Jean-Claude Escarras, 2019). The beneficiaries of these systems are also obligated to pay the taxes due upon purchasing one of them allocated to finance the fund. Financing the fund is as described above. It works to divide the risks arising from damage to artificial intelligence systems among all parties involved in manufacturing and exploiting these systems, as it works in conjunction with the idea of compulsory insurance, because the Fund only intervenes in a complementary manner alongside the compulsory insurance system, and then the injured person can obtain full compensation by supplementing the compensation due from the Fund's account, if he is compensated with partial paralysis from the compulsory insurance system for any reason (Guillaume Guegan, 2016).

Artificial intelligence has become a reality that imposes profound and fundamental changes on our lives, and its applications continue to grow stronger and more widely used, and its impact on almost all various fields and fields, such as: medicine, geology, aviation, security, agriculture, and education...., and its importance is no different. The various services it provides to the human individual. However, the fears of what might happen in the future cannot be denied, especially those related to dangers and threats that result in material and even moral damage.

In the context of interest in the role of insurance in confronting these risks and threats, as well as mitigating them, some countries have sought to activate the mechanism of the insurance industry after the inability that prevailed in the traditional rules of civil society to perform the compensatory function as a result of the tremendous development of smart systems. It is often impossible for the affected parties to determine who is obligated to pay Compensation, especially since some legislation considers the user of artificial intelligence not to be a custodian of the thing according to general rules, who is liable for damages, and who may be exempt from liability when the damage occurs for an unexpected reason. Based on the above, it becomes clear to us the clear role that insurance will play. In preventing threats to smart systems, this study finally reached a number of results and recommendations that can be listed as follows:

Results:

- ✓ Insurance has become an important space in the field of smart systems because it achieves balance and stability of financial solvency to compensate those affected, and stimulate investment in the production and services field by distributing the burdens and damages arising from these systems to all parties.

- ✓ Insurance principles can provide a global roadmap for developing and expanding the scope of confronting threats and risks and finding innovative insurance solutions needed to enhance the use of artificial intelligence technologies.
- ✓ The insurance system is considered an effective system in confronting all risks arising from smart systems, as it plays a major role in compensating many damages that the judicial system is unable to assess.
- ✓ The system of compensation funds for damages resulting from smart systems is an urgent necessity in addition to the liability and insurance systems, as it is a complementary system for damage arising in cases where the liability and insurance systems are unable to do so.
- ✓ Continuous interaction, especially in the context of information exchange of data between insurance companies and technology companies, is a mechanism that enhances the response to artificial intelligence risks to confront or reduce them.

Recommendations:

- It is mandatory to keep legislation abreast of developments in digital transformation and smart systems and the resulting harms.
- Thinking about insurance against smart systems risks by expanding the scope of insurance coverage, especially in developing countries due to their rapid development.
- To think about and make efforts by the international community to develop special legal and regulatory frameworks, whether legislative or judicial, at the local and international levels that determine responsibility for damages resulting from artificial intelligence.
- Obliging individuals and companies, whether employed, developed, produced or owned, that may cause risks to the compulsory insurance system, by making insurance a necessary condition for the operation and licensing of these companies and a condition for licensing individuals to practice their activities.
- Encouraging insurance companies to invest their money in the field of artificial intelligence, and training their users on how to deal with it.
- Amending the provisions of the Algerian Civil Code and Insurance Law in line with the nature of liability for damages arising from artificial intelligence technologies, which is gradually imposed in practice.
- On the basis that human dignity and all human rights are in great danger, the standards on which new technology is based must be reconsidered to ensure electronic security.

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