



How to cite this article:

Tafaghodi, S. (2027). Application of Artificial Intelligence in the International Trade System. *Journal of Historical Research, Law and Policy*, 5(1), 1-14. <https://doi.org/10.61838/jhrp.329>



Article history:
Original Research

Dates:

Submission Date: 10 February 2026
Revision Date: 04 May 2026
Acceptance Date: 12 May 2026
First Publication Date: 12 May 2026
Final Publication Date: 01 January 2027

Application of Artificial Intelligence in the International Trade System

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ABSTRACT

The present study was conducted with the aim of comprehensively examining and analyzing the emerging mechanisms of the application of artificial intelligence in the international trade system and its legal implications. This study provides a detailed explanation of the transformative impacts of artificial intelligence on the global value chain. These impacts include logistics optimization, automation of trade documentation, improvement of demand forecasting, and significant enhancement of efficiency in customs procedures. The primary focus is on how these technologies contribute to increasing transparency, reducing costs, and minimizing operational risks in cross-border transactions. The study further concentrates on the legal and regulatory consequences of these applications. The legal analysis includes the examination of emerging challenges such as issues related to cross-border data governance, the determination of civil liability arising from algorithmic decisions, the compatibility of smart contracts with international contract law, and the existing gaps in international standardization. The research methodology adopts a qualitative descriptive-analytical approach based on documentary research and content analysis of legal rules and regulations. In addition to describing the current state of affairs, the study critically evaluates existing frameworks and proposes policy-oriented solutions for adapting the legal system of trade to the era of artificial intelligence.

Keywords: *Artificial Intelligence, Contract, Arbitration, Trade*

Introduction

Artificial intelligence is one of the most important keywords in the contemporary world of technology. It has entered into competition with human intelligence and is developing across various domains of human life. This emerging field simulates machine behavior in relation to human behavior in such a way that the machine can analyze problems like the human brain and make decisions based on the rules and procedures embedded in it (1).

In general, the term artificial intelligence is used to describe systems whose purpose is to use machines to imitate and simulate human intelligence and the behaviors associated with it. This purpose may sometimes be achieved through simple algorithms and predetermined procedures, but in other cases it requires highly complex algorithms. Artificial intelligence refers to systems that can produce reactions similar to intelligent human behaviors, including the perception of complex conditions, simulation of human thought processes and reasoning methods, successful responses to such processes, learning, knowledge acquisition, and reasoning for problem-solving. Today, artificial



intelligence has extensive applications in various fields, such as engineering, medicine, pharmaceutical production, manufacturing, and services. This technology is used in politics to analyze electoral trends, in marketing to extract tendencies and viewpoints, and in many other areas. Today, artificial intelligence behaves like a rational human being in ways that can be evaluated in relation to human performance and the activity of the human brain; that is, it thinks, plans, makes decisions based on expert-system information and the analysis of its inference engine, and then acts.

Artificial intelligence refers to systems that can produce reactions similar to intelligent human behaviors, including the perception of complex conditions, the simulation of human thought processes and human methods of reasoning, successful responses to them, learning, knowledge acquisition, and reasoning for problem-solving. The entry of artificial intelligence into the field of law is also an important and wide-ranging issue that can be effective in various aspects of legal knowledge. The application of artificial intelligence goes far beyond creating excitement in science-fiction films. Implementing intelligent and optimized strategies in digital marketing is one of the applications of artificial intelligence. Even when users view Google search results, they are making use of the role and influence of artificial intelligence. With the advancement of science and technology, artificial intelligence technology is becoming increasingly mature and is significantly changing the way people work and live. Particularly in the field of e-commerce, artificial intelligence technology has gradually become a powerful tool for increasing sales (2).

The impact of artificial intelligence on international trade, and consequently on international politics, lies in making trade increasingly targeted. Artificial intelligence can shape or direct the preferences of the audience and thereby make such influence more extensive. Through this mechanism, the target market of a company may be captured by a competitor, meaning that through investment by a rival company or institution in the target market and by changing consumer preferences, the original target market may be lost. In this study, we examine the application of artificial intelligence in the international trade system.

The Necessity of Laws and Regulations in the Field of Artificial Intelligence

With the formation and growth of the profound ocean of artificial intelligence, warnings are still being heard. Scientists and officials of various organizations and institutions, and even filmmakers such as Cameron, have referred to the 1984 film Terminator, in which an artificial intelligence called Skynet attains self-awareness and conquers humanity. In recent months, leading figures in artificial intelligence have also expressed concern in this regard, including Elon Musk, the owner of Twitter, and Sam Altman, the CEO of OpenAI. Given the rapid growth of artificial intelligence, this situation has prompted consideration of the necessity of adopting laws and regulations related to it. Undoubtedly, the first effect of adopting laws in the field of artificial intelligence will concern its application. On the other hand, given the broad importance of artificial intelligence in societies and the very significant effects it can have, the adoption of relevant laws is necessary. These laws can define restrictions on the use of artificial intelligence in order to prevent misuse and negative effects on society (3). Moreover, legislation can help companies and individuals use artificial intelligence with greater confidence and assume responsibility for its proper use.

The Legal Validity of Contracts Based on Artificial Intelligence

The legal validity of contracts based on artificial intelligence depends on compliance with the essential conditions for the validity of a transaction, including the capacity of the parties, valid intention and consent, and the legality of

the contractual purpose. The use of artificial intelligence as a tool for concluding or performing a contract does not impair its validity, and the intention expressed through an algorithm is attributed to the natural or juridical person using the system (4, 5).

The Capacity of the Contracting Parties

Capacity, as one of the essential conditions for the validity of transactions, also plays a fundamental role in contracts based on artificial intelligence. Under the traditional rules of civil law, the conclusion of a contract requires the legal capacity of the parties, and this condition remains valid in smart and algorithm-driven contracts. The use of artificial intelligence as a technical tool for concluding or performing a contract in no way eliminates the need to establish the capacity of natural or juridical persons (4).

In international commercial contracts concluded through intelligent systems, the contracting parties are usually juridical persons, such as companies. In such cases, the company's capacity is exercised through its legal representatives, and the decision to use artificial intelligence is regarded as a managerial decision of the company. Therefore, if a legal representative with valid authority uses an artificial intelligence system, the contract concluded will not be defective in terms of capacity (6).

Some domestic scholars have emphasized that conceptual confusion should not occur between "capacity to conclude a contract" and "capacity of the instrument of conclusion." Artificial intelligence itself lacks legal personality and legal capacity, but this does not impair the validity of the contract, because capacity is attributed to the human or juridical person using the system (5).

Attribution of Intention to Natural or Juridical Persons

One of the fundamental challenges in algorithm-based contracts is the issue of attributing contractual intention. In traditional law, intention, as the psychological element of the contract, is directly attributed to a human person. However, in contracts concluded with the intervention of artificial intelligence, intention is apparently expressed through an automated system. The main question is whether this intention can be attributed to the person using artificial intelligence.

In response, most Iranian jurists believe that the intention expressed through artificial intelligence is the direct or indirect intention of the human person, because the decision to use the system, determine the scope of its authority, and accept the outcomes of its operation all arise from human intention (7). In other words, artificial intelligence is regarded as the person's "technical representative," not as an independent legal actor.

This analysis is particularly important in international trade, because acceptance of the non-attribution of intention could lead to the widespread invalidity of contracts concluded through intelligent systems. Therefore, attributing intention to the person using the algorithm guarantees legal certainty and the stability of commercial transactions (8).

Admissibility Before Arbitral and Judicial Authorities

The admissibility of a contract as evidence is one of the most important effects of its legal validity. With regard to contracts based on artificial intelligence, the question arises as to whether such contracts can be relied upon before judicial authorities and international commercial arbitral tribunals. The prevailing answer in Iranian law is affirmative, provided that the essential conditions for the validity of the transaction have been observed (4).

In international commercial arbitration, the principle of freedom of evidence and the procedural flexibility of arbitration have created a suitable basis for accepting smart contracts. Many arbitrators accept digital data and records registered in artificial intelligence systems as valid evidence, provided that the authenticity and integrity of the data are established (9).

In domestic courts as well, although extensive judicial practice concerning smart contracts has not yet developed, given the acceptance of electronic documents in statutory law, contracts based on artificial intelligence may be considered admissible. Thus, technological transformation does not prevent the application of traditional rules of private law; rather, it requires their dynamic and updated interpretation (5).

Artificial Intelligence in the Performance of Commercial Obligations

By providing tools for automated monitoring and control, artificial intelligence plays an important role in the accurate and rapid performance of contractual obligations in international trade. This technology makes it possible to reduce disputes and increase the legal security of transactions.

Intelligent Monitoring of Contract Performance

One of the most important applications of artificial intelligence in international trade is intelligent monitoring of the performance of contractual obligations. In traditional commercial contracts, control over the proper performance of obligations is mainly the responsibility of the parties or third-party institutions, such as inspectors and contractual experts. The use of intelligent systems makes it possible to monitor contract performance continuously, accurately, and automatically, thereby preventing many legal disputes (9).

From the perspective of private law, intelligent monitoring can be analyzed within the framework of the principle of the binding force of contracts and good faith in the performance of obligations. By recording and analyzing data related to contract performance, artificial intelligence can identify breach or delay in the performance of an obligation at the initial stages. This function enables the obligee to take the necessary measures before serious damage occurs (4).

In international trade, where the performance of contracts is difficult because of geographical distance and differences among legal systems, the use of intelligent systems becomes particularly important. These systems are capable of recording and documenting the performance of obligations impartially and, in the event of a dispute, providing information that can be relied upon before arbitral tribunals or courts (5). Nevertheless, complete reliance on algorithmic monitoring without human intervention may lead to errors arising from technical defects or inaccurate data. For this reason, many Iranian jurists emphasize combining intelligent monitoring with human supervision so that both accuracy and speed are increased while the legal responsibility of the parties remains preserved (7).

International Payments and Artificial Intelligence

Artificial intelligence has a significant role in international payments and helps facilitate and accelerate transactions. Intelligent systems can process financial transactions automatically, reduce human error, and increase financial security. This technology is of particular importance in cross-border transactions involving multiple currencies and different banking systems (5).

One important function of artificial intelligence in this field is fraud reduction and the management of financial risks. Advanced algorithms can identify unusual transaction patterns and issue warnings in order to prevent misuse

and disruption in transactions. This function is consistent with the principle of legitimate assurance and the protection of the rights of the contracting parties, and it increases trust in international trade (4). In addition, the use of artificial intelligence in payment processing can minimize transaction settlement time. In the past, interbank processes could take days or weeks, but intelligent systems, through automated processing, increase the speed of liquidity and capital flow. This directly affects the efficiency and stability of commercial contracts (8).

Despite these advantages, it should be noted that the use of artificial intelligence in international payments also creates responsibilities for the parties. For example, software errors or cyberattacks may cause significant financial loss. Therefore, combining human supervision with artificial intelligence and establishing clear legal frameworks for responsibilities arising from intelligent transactions are necessary (7).

The Role of Artificial Intelligence in the Global Supply Chain

Artificial intelligence plays a vital role in managing the global supply chain, particularly in international trade, and leads to increased efficiency, reduced costs, and the prediction of disruptions. Intelligent systems analyze logistics data and monitor transportation conditions and the supply of goods in real time, predicting potential problems before they occur (5). This capability increases the confidence of the contracting parties and reduces risks arising from delay or defects in the delivery of goods.

One of the most important applications of artificial intelligence is the optimization of transportation routes and the allocation of resources. Algorithms analyze the volume of goods, delivery schedules, and geographical and climatic conditions and propose the best routes and methods of transportation. This function not only reduces logistics costs but also increases delivery speed and cargo security in international transactions and can prevent claims arising from delay (4).

Artificial intelligence also plays a role in monitoring the quality of goods and conformity with the contract. Intelligent systems can record data related to production, packaging, and shipment and issue warnings in the event of inconsistency with contractual terms. This capability helps realize the principle of proper performance of obligations and protects the rights of the parties, preventing harm to the user or buyer (7). Despite the advantages mentioned, the widespread use of artificial intelligence in the global supply chain requires the creation of clear legal frameworks and standards for regulating contractual relations. Otherwise, responsibility arising from algorithmic errors or data defects may lead to complex international disputes. Therefore, combining technology with robust legal rules is a prerequisite for the successful and secure use of artificial intelligence in global trade (5).

Civil Liability Arising from the Operation of Artificial Intelligence in International Trade

Liability Arising from Algorithmic Error

One of the most important challenges of private law in international trade is the issue of liability arising from algorithmic error in artificial intelligence. Intelligent systems operate based on predefined data and algorithms, and if mistakes occur in information processing, financial or contractual damage may be caused to the other party. Although such damage does not arise from direct human intention, its legal effects on the parties are significant (4).

In Iranian law, civil liability is mainly based on the theory of fault or the theory of risk. However, algorithmic error, which arises from poor data or technical defects, may not be interpretable within the framework of traditional fault. For this reason, some Iranian jurists emphasize the necessity of creating objective or strict liability for users and

producers of artificial intelligence so that damage caused by error can be compensated (5). Given the importance of the security of international transactions, accepting non-liability because of technical complexity may lead to commercial distrust. Therefore, it is necessary to develop legal frameworks that make it possible to attribute damage arising from the operation of artificial intelligence to the relevant natural or juridical persons (7).

Ultimately, in order to reduce the negative effects of algorithmic error, it is recommended that a combination of human supervision and artificial intelligence be used. This approach ensures that, in addition to increasing accuracy and speed, the possibility of applying civil liability and preventing major losses is also provided (8).

Liability of the Software Producer

Another aspect of civil liability arising from artificial intelligence is the liability of the software producer. The producer is responsible for designing and providing a system that functions properly and operates within technical and commercial standards. If a technical defect or weakness in training data leads to damage, the producer is obliged to compensate for it (9). This type of liability is comparable to liability arising from defective products in comparative law. If software is designed in such a way that it causes unexpected damage, the producer cannot be exempted from liability, even if direct human fault is not proven (5).

In international trade, this issue becomes more important because the producer and the user are usually located in different countries, and determining the governing law and competent forum for bringing a claim is complex. Creating international standards for the liability of artificial intelligence producers can guarantee the legal security of transactions (7). Another important point is that the producer's liability must be assessed in light of the specific application of the system in each contract. Some software programs are merely auxiliary tools, while others play a role in making critical decisions; consequently, the scope of liability will differ (4).

Liability of the Commercial User

In addition to the producer, the user of artificial intelligence also bears civil liability. The commercial user, by exploiting the system and obtaining direct economic benefit, is obliged to take the necessary measures to reduce potential risks (8). In this regard, Iranian jurists make use of the model of "possessor of a dangerous instrument." The user, as the person who has authority and control over the system, is obliged to be responsible for possible errors and, in the event of fault, to compensate for damage (5).

In international transactions, this liability is more important because the parties to the contract may have less ability to exercise direct supervision because of geographical distance, different laws, and technical complexities. Therefore, the user is responsible for guaranteeing the proper operation of the system and adopting precautionary measures. Ultimately, the liability of the user and the producer is usually applied in combination in order to establish legal balance. This approach increases legal security and reduces disputes arising from the operation of artificial intelligence in international trade (10).

Strict Liability in International Trade

Strict liability is a form of liability under which a person is responsible for compensating damage without the need to prove fault or human error. In the case of artificial intelligence, strict liability may be applied to complex and automated decision-making systems, particularly when the damage arising from their operation is extensive and irreparable. This type of liability is especially important in international contracts, because identifying and proving

fault in different legal and judicial environments is difficult. Acceptance of strict liability increases legal certainty and predictability in transactions and encourages the parties to use artificial intelligence cautiously and responsibly (11).

In Iranian law, the use of strict liability is limited to specific cases and dangerous instruments. However, given the development of technology and international trade, many scholars have proposed that a special legal framework for strict liability in relation to artificial intelligence be drafted. This approach presents a combination of the theory of risk and strict liability, which, while preserving justice, reduces the risks arising from algorithmic errors and strengthens the trust of the parties in cross-border transactions (12).

Limitations on the Use of an Artificial Intelligence Arbitrator in International Trade Law

Adjudication is one of the fundamental pillars of the legal system, and the role of the judge in ensuring the administration of justice is highly important. It is clear that adjudication and fair trial are among the most important objectives of any legal system. It can even be said that if adjudication does not lead to the issuance of a just judgment, the proceedings will have been futile and pointless. The judge is responsible for interpreting and applying the law to the case, making decisions based on the evidence presented, and considering the legal arguments of the parties. Therefore, the basis of every act of adjudication and the drafting of every judgment and decision rests with the judge. Accordingly, dispute resolution by a court judge is carried out through the judge's own inquiries and research, as well as through questions and answers during the course of the proceedings.

The importance of adjudication lies in resolving disputes between the parties to a claim. Fair and impartial adjudication can help restore confidence in the legal system and provide a sense of justice for those who have been wronged. The role of the judge in this process is to act as an impartial decision-maker, weigh the evidence presented, and apply the law to the subject of the dispute in a coherent and logical manner. Judges must be aware of laws and legal procedures and must also have skills in critical thinking and factual analysis. The decision of a judge or arbitrator must be based on justice, and this is why individuals bring an action before a court or refer a dispute to arbitration: to attain justice. Therefore, the judge or arbitrator must make every effort to achieve this important objective. One of the fundamental principles of adjudication is the well-known principle of independence in proceedings. This principle can be regarded as the foundation and central concept of justice. The judge or arbitrator must be impartial. Among the conditions for the validity of adjudication or arbitration are maintaining impartiality and avoiding bias. In fact, the judge or arbitrator must not only occupy an independent position but must also be fair and impartial (13).

In addition to deciding cases, judges also play a broader role in shaping the law and the legal system. Through their decisions, judges can create legal precedents that guide outcomes in future cases, and by identifying legal gaps, they can contribute to the development of law. Overall, adjudication and judges are essential components of a just legal system, ensuring that justice is administered and the rule of law is preserved. There are several necessary characteristics that a judge must possess in order to perform his or her duties and responsibilities effectively. A judge must have characteristics such as legal knowledge, honesty, commitment, and interpersonal skills in order to perform his or her duties effectively and ensure the administration of justice.

According to Article 3 of the Code of Civil Procedure, which provides that "judges of courts are obliged to hear claims in accordance with the law and issue the appropriate judgment or resolve the dispute. If statutory laws are incomplete, unclear, conflicting, or if no law exists in relation to the matter raised, they must issue the judgment in the case by relying on valid Islamic sources or authoritative fatwas and legal principles that are not contrary to

Sharia standards, and they may not refuse to hear the claim and issue judgment on the pretext of silence, deficiency, ambiguity, or conflict of laws; otherwise, they shall be deemed to have refrained from administering justice and shall be sentenced to the relevant punishment. Courts are also obliged to determine each claim specifically and must not issue general and abstract judgments.” In order to reach a just decision, the judge must hear the case in light of laws and regulations as well as the specific circumstances of each dispute. Therefore, the judge’s excuse that there are no laws or regulations concerning the dispute is not acceptable, and the judge must not extend the conditions of one dispute to another. Extending the circumstances of one dispute to another may affect adjudication or arbitration and lead to injustice in the issued award (14).

Another manifestation of justice in a decision is the issuance of a reasoned and substantiated decision by the judge or arbitrator. The existence of reasoning in the decision of a judge or arbitrator can confer legitimacy on that decision. It is one of the rights of the parties to know why the decision of the judge or arbitrator has been issued in their favor or against them. It is possible that a person against whom a decision has been issued may, by proving an error in the reasoning of the judge’s decision, seek reconsideration and have the decision changed in his or her favor. Taking these points into account, it is necessary to examine whether artificial intelligence arbitration encounters challenges when compared with the role of the judge or arbitrator. Artificial intelligence arbitration should not be abandoned merely because it may face challenges; rather, these challenges should be identified and efforts should be made to resolve them. Given the necessity of examining the challenges of an artificial intelligence arbitrator, in this part of the study we analyze the obstacles to artificial intelligence arbitration, which consist of three main parts: limitations in the implementation and development of an artificial intelligence arbitrator, limitations in the data required for the decision-making process by an artificial intelligence arbitrator, and limitations in the awards issued by an artificial intelligence arbitrator (15).

The Role of Party Autonomy and the Approach of Courts in Giving Effect to Artificial Intelligence Arbitration

In general, in the method of dispute resolution through arbitration, the authority to appoint the arbitrator or arbitrators is entrusted to the parties to the dispute. In fact, the authority to appoint the arbitrator and determine his or her jurisdiction by the parties to the dispute falls within the scope of party autonomy in arbitration. This is one of the factors distinguishing arbitration from the judicial institution and one of the reasons why parties to disputes are inclined toward arbitration (6). Party autonomy also leads to the expansion of arbitration and, at the same time, reduces the caseload of the judiciary. Party autonomy is the axis of arbitration and one of the most important advantages of international commercial arbitration. Party autonomy gives the disputing parties the opportunity to intervene and agree on various aspects of the arbitral procedure. Thus, unlike dispute resolution in court, the parties can choose arbitrators to hear their dispute according to the arbitrators’ expertise and abilities.

Since party autonomy is self-evident in arbitration, the parties are, in principle, permitted to agree on different aspects of arbitration. Accordingly, if an artificial intelligence arbitrator is not contrary to the values of public order and mandatory rules, it can be used in the arbitration process. It should be noted that because an artificial intelligence arbitrator does not yet exist, and because, for the same reason, it is not possible to identify the positions of states toward awards issued by such an arbitrator, it is not possible to express a definitive view on the recognition and enforcement of such awards. To date, no law has expressly provided whether an award in which the parties have appointed artificial intelligence as the arbitrator may be enforced or not (13).

The ultimate objective of dispute resolution is the attainment of justice. Based on the previous sections of the study, artificial intelligence arbitration can lead to greater specialization in arbitration and increase its accuracy and speed. In the face of legal resistance to keeping pace with technology, the approach of courts toward artificial intelligence arbitration is of vital importance. Therefore, arbitration agreements in which artificial intelligence is appointed as arbitrator will be enforced in courts that respect the parties' agreement. Accordingly, courts, through interpretations of public order that are aligned with technology, can significantly assist in the recognition and enforcement of awards issued by artificial intelligence arbitrators. It appears that the passage of time and the use of artificial intelligence in arbitration will reduce the resistance of courts to artificial intelligence arbitrators and lead to the expansion of this efficient type of arbitration.

The enforcement of international arbitral awards has always been one of the most controversial legal issues in the field of arbitration. With technological advancement and the emergence of artificial intelligence in the management and implementation of arbitral proceedings, the enforcement of such awards will face greater challenges. Within the framework of enforcing international arbitral awards, on the one hand, the award must be examined by the country from which enforcement is requested, and on the other hand, the rules of the New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards must be taken into account. The drafting of the New York Convention dates back to a time when technology had not yet become as widespread as it is today (16). Therefore, the need to amend the rules of the New York Convention in line with the entry of technology into arbitration is felt; however, must the rules necessarily be amended, or do they possess the necessary flexibility to cover artificial intelligence arbitration?

Pursuant to Article 7(1) of the New York Convention, "The provisions of this Convention shall not affect the validity of multilateral or bilateral agreements concerning the recognition and enforcement of arbitral awards entered into by the Contracting States nor deprive any interested party of any right he may have to avail himself of an arbitral award in the manner and to the extent allowed by the law or treaties of the country where such award is sought to be relied upon." It may be concluded that facilitative national laws concerning the entry of artificial intelligence into arbitration can be relied upon for the recognition and enforcement of arbitral awards. This is consistent with the spirit of the Convention, which seeks to increase the recognition and enforcement of arbitral awards. One of the important issues in treaty law is the interpretation of treaties. International treaties, as constituent instruments of international organizations, are by their nature international treaties. This fact is sufficient for interpreting such treaties within the general framework of the 1969 Vienna Convention on the Law of Treaties (17).

The New York Convention is a dynamic international instrument and can be interpreted, in light of the purpose of its adoption, in a manner compatible with artificial intelligence arbitrators and the awards they issue. If such awards possess legitimacy under the rules of the New York Convention, it can be expected that states will recognize and use artificial intelligence arbitration. It should be noted that an arbitrator hears a dispute and issues an award on the basis of the parties' agreement. Ultimately, the arbitrator's award is decisive of the dispute. Therefore, when an artificial intelligence arbitrator resolves a dispute by making a decision in accordance with the parties' agreement, and that decision is decisive of the dispute, an award has been issued in the real sense. In light of the spirit of the Convention, the final decision of an artificial intelligence arbitrator can be regarded as an award and may be recognized and enforced in accordance with the provisions of the Convention.

Types of Applications of Artificial Intelligence in the International Trade System

Analysis of Contracts and Commercial Documents

By using natural language processing techniques, artificial intelligence has made it possible to analyze massive volumes of complex international commercial contracts and documents in a fraction of a second. This technology can scan tens of thousands of pages of documents and extract key clauses, obligations of the parties, expiration dates, and termination conditions; an operation that previously required hours or days of work by specialized human personnel. This high speed allows multinational companies to reach conclusions more quickly in large and time-consuming transactions and to prevent the loss of commercial opportunities.

One of the most important applications of this technology is the identification of legal risks and inconsistencies with local or international laws. Intelligent algorithms compare the text of contracts with databases of customs laws, export and import regulations, and global trade standards, highlighting blind spots and dangerous points that may be overlooked by human lawyers. This capability is particularly vital in contracts concluded with parties from different legal systems, because it can reveal conflicts between the laws of countries before the contract is signed. In addition to identifying errors, artificial intelligence has the capacity to propose amendments and optimize contractual clauses. Machine-learning-based systems, by analyzing thousands of successful and unsuccessful contracts in the past, can propose clauses that create a better balance between the interests of the parties or reduce financial risks. This feature not only improves the legal quality of documents but also functions as an educational and supportive tool for younger lawyers and raises the overall level of legal knowledge within organizations (18).

In the field of regulatory compliance, artificial intelligence continuously monitors commercial documents to ensure that the contracting parties remain committed to their obligations throughout the duration of the contract. These systems can monitor sudden changes in the financial status of the parties, the issuance of new court judgments, or changes in sanctions lists and trade prohibitions, and warn managers whether continuing cooperation with the relevant party entails legal risk or heavy penalties. This continuous monitoring prevents complex disputes from arising in the future. Despite these advantages, legal challenges concerning responsibility in the event of algorithmic error and the issue of transparency in the method of data analysis remain. If artificial intelligence overlooks a vital clause or provides an incorrect interpretation of an international law, determining the legally responsible party will be complex. Therefore, at present, artificial intelligence functions as a powerful auxiliary tool for lawyers and legal managers, but final decision-making and legal responsibility remain with human experts in order to prevent systemic errors and possible biases in training data (19).

Resolution of Commercial Disputes

Artificial intelligence, by creating online dispute resolution platforms, has brought about a profound transformation in the way international commercial disputes are handled. These intelligent platforms allow companies to resolve their disputes remotely and much more quickly, without the need for physical presence in foreign courts or the heavy costs of travel. This method is particularly efficient and cost-effective for low-value or medium-value contracts for which the costs of traditional litigation are not justified, and it reduces the burden on traditional judicial systems. One of the advanced capabilities of artificial intelligence is the analysis of historical data from judicial decisions and international arbitral awards in order to predict the probable outcomes of claims. By examining thousands of judgments issued by different courts around the world, algorithms can predict the chance of success of a legal claim

with high accuracy. This prediction helps lawyers and legal managers design defense strategies or out-of-court settlement agreements based on statistical realities and avoid entering cases with a low chance of success (18).

Artificial intelligence has also made access to justice more democratic at the global level by providing “automated legal advice” to individuals and small companies. Through interactive question-and-answer systems, these platforms can help users understand their rights, collect the necessary documents, and even prepare preliminary drafts of complaints or legal responses. This feature reduces the gap between large companies with strong legal teams and smaller businesses and gives all parties a more equal opportunity to pursue their rights in the field of international trade.

In international arbitration proceedings, artificial intelligence functions as an auxiliary tool for arbitrators and significantly reduces the time needed for proceedings by classifying documents, extracting the key points of dispute, and identifying contradictions in witness testimony. This technology can quickly filter the massive volume of electronic documentation that exists in complex commercial cases and present only the relevant and effective evidence to the arbitrator. This leads to the issuance of clearer, more substantiated, and higher-quality arbitral awards that have greater enforceability in different countries. Nevertheless, the use of artificial intelligence in dispute resolution entails serious challenges related to algorithmic bias and the absence of human judgment. If the system’s training data contain racial, gender-based, or cultural discrimination, the awards issued may also be unjust. Moreover, many legal experts believe that international trade requires cultural subtleties and contextual interpretations that machines are not yet capable of fully understanding (15). Therefore, artificial intelligence should be used as an auxiliary tool alongside a human judge or arbitrator so that, while speed and accuracy are preserved, the principles of fairness and justice are also observed.

Prevention of Money Laundering and Fraud

By processing massive volumes of financial data and international transactions in real time, artificial intelligence has significantly increased the ability to identify suspicious and abnormal patterns that indicate money laundering or fraud. Unlike traditional methods, which were based on fixed rules and manual review and often allowed many cases to escape scrutiny, machine-learning algorithms can identify complex and abnormal behaviors among millions of ordinary transactions. This capability enables banks and financial institutions to manage the risks arising from non-compliance with anti-money-laundering regulations in a preventive manner. One of the key advantages of artificial intelligence in this field is the reduction of false positives. Older systems often generated thousands of unfounded alerts, wasting experts’ time and causing fatigue, whereas intelligent models, by learning from past data and continuously adapting to the real behavior of customers, increase the accuracy of alerts and focus human teams on genuinely high-risk cases. This increased accuracy not only reduces operational costs but also accelerates the handling of suspicious cases (1).

Artificial intelligence also plays a vital role in identifying complex networks of organized crime that use layering methods for money laundering. Through graph and network analysis, these systems can reveal hidden relationships among bank accounts, shell companies, and different intermediaries in various countries. This ability to uncover nested structures designed to conceal the origin of criminal proceeds is of strategic importance for international regulatory bodies and financial police. In addition to money laundering, artificial intelligence has broad applications in combating fraud in commercial and customs documents. This technology can examine transport documents, customs declarations, and invoices with high precision and identify contradictions, forgeries, or apparent

inconsistencies that may lead to tax evasion or goods smuggling. By comparing these documents with real supply-chain data and historical trade patterns, intelligent systems can rapidly detect cases in which the value of goods has been artificially declared lower or higher than their actual value (2).

Despite these advances, challenges such as the protection of data privacy, algorithmic transparency, and the need for continuous updating of models to counter new fraud methods remain. In addition, automated decision-making by systems must not lead to the unjustified freezing of the accounts of legitimate customers; therefore, human supervision over artificial intelligence outputs is necessary. The future of these systems is moving toward the integration of artificial intelligence with other technologies, such as blockchain, so that transparency and traceability of transactions in international trade can reach a new level of security and trust.

Conclusion

Artificial intelligence, as an emerging technology in international trade, has not only increased the speed and accuracy of transactions but has also brought about profound transformations in private law. Its applications, from the stage of contract conclusion to the performance of obligations, have facilitated commercial processes and reduced the role of human intermediaries. This transformation has revealed the necessity of revisiting traditional rules of contract law and civil liability. In contract formation, artificial intelligence, through smart contracts, makes the automatic performance of contractual terms possible and can accurately conduct risk analysis, propose standard terms, and reduce information asymmetry. These features increase the legal security of the parties and reduce potential disputes in international transactions.

Despite technical advantages, the issue of legal validity and the capacity of the parties remains. Human intention in designing and using artificial intelligence systems must be taken into account so that contracts are admissible. Arbitral authorities and courts can use data recorded in these systems as valid evidence for proving the claims of the parties. In the performance of obligations, artificial intelligence plays the role of intelligent monitoring and optimization of the supply chain and international payments. These systems monitor delivery times, quality, and payments and reduce human errors. In this way, the prevention of damage and the improvement of the efficiency of international contracts become possible. Nevertheless, algorithmic error and software defects may cause damage. Liability arising from the operation of artificial intelligence must be attributed to the producer and the user. Iranian law and international experiences show that a combination of human supervision and clear legal frameworks is the best way to reduce risks arising from error.

Artificial intelligence also contributes both to the emergence and the resolution of commercial disputes. Smart contracts and automated transactions may lead to disputes over the interpretation of obligations or processing errors, but at the same time, intelligent tools can analyze and document disputes more quickly and accurately, particularly in international arbitration and mediation. The application of artificial intelligence in dispute resolution not only reduces the time and cost of proceedings but also increases legal security and transparency. Automatic data recording and real-time analysis of contract performance make it possible to prove breach or fault quickly and accurately and prevent misuse or prolonged disputes. Given the challenges arising from emerging technologies, the necessity of establishing clear legal standards and frameworks at the national and international levels is highly significant. These standards must include the liability of producers, users, and requirements concerning supervision and data security in order to preserve the trust of the parties and the stability of transactions.

In conclusion, artificial intelligence creates both opportunities and legal challenges for international trade. Its scientific and systematic use can increase the speed, accuracy, and security of transactions, but without a legal framework, it may lead to complex disputes and liabilities. Therefore, the combination of technology, human supervision, and legal rules is the key to the successful use of artificial intelligence in the international trade system.

Acknowledgments

We would like to express our appreciation and gratitude to all those who helped us carrying out this study.

Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

All ethical principles were adhered in conducting and writing this article.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

Funding

This research was carried out independently with personal funding and without the financial support of any governmental or private institution or organization.

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