Artificial Intelligence in International Commercial and Investment Arbitration

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Abstract

The topic we propose to address aims to analyze the possible impacts of "new technologies", especially artificial intelligence (AI), in the context of international commercial arbitration. International disputes often involve complex issues of fact and law, entailing high costs with arbitrators, lawyers, translators and witness travel. International arbitration is often criticized for the lack of transparency of arbitrators, given the inaccessibility of evidence and hearings, and also the lack of speed of the arbitration process regarding the volume of documentation to be analyzed. New technologies, such as data analysis and AI, thus constitute an important tool, both for the analysis of those complex issues, and also for minimizing costs and accelerating the process, namely, allowing remote hearings to be held and automated analysis of documents. In short, the handicaps of international arbitration can be overcome with the use of new technologies, which will lead to greater efficiency, transparency and fairness in the international dispute resolution process. We will analyze the stages of the arbitration process, from the constitution of the court to the sentence delivery, using the deductive method, seeking to demonstrate how (IA) can maximize the arbitral "iter", contributing to a greater ethics of this alternative means of litigation resolution.

Keywords: *international arbitration; foreign investment; celerity; efficiency; artificial intelligence; transparency.*

JEL Classification*:* K22, K33, K41

1. Introduction

The development of New Technologies (NT) has introduced, in recent times, and especially during the by Covid 19 pandemic, paradigmatic changes in the way people live and interact in society; in short, in the world. Law, in the global context, cannot remain on the sidelines of this phenomenon dubbed the 4th Industrial Revolution, proving to be permeable, in some of its dimensions, to this entire technological phenomenon. People no longer live like they used to. Changes occur at the speed of light, causing profound changes in human relationships, regardless of the context in which they arise.

The present study intends to focus on how the NT can contribute to overcome some of the international commercial arbitration obstacles; to what extent can arbitration *iter* benefit from knowledge, namely from AI.

Overcoming the ups and downs that have been, in the last four decades, pointed out to this method of resolving disputes within the scope of international trade, will be a challenge for scholars in this area of law, providing a reflection on the articulation of these two realities, although not forgetting the regulatory role of Law, as a means of disciplining and limiting the risks inherent to NT.

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The proposed theme raises a multitude of issues, which we intend to equate and understand, not neglecting the search for the NT's contribution to the implementation of a more ethical, more transparent, faster and less expensive *arbitration*.

We will not be able to exhaust the contours of the theme, nor would it be achievable, either because of its difficulty or because of the countless problems posed by the constant and challenging evolution of the NT.

It is our opportunity to contribute to the discussion about the improvements that AI can provide in the context of arbitration and how technological tools can interact with a process that is intended to be agile, safe, perhaps predictable, and accepted by all its protagonists, *maxime* international trade operators.

2. Artificial intelligence and its challenges

The first research on artificial intelligence dates back to the 1940s, after the creation of the first digital computer. However, the expression "artificial intelligence" appeared in 1956, at a meeting in New Hampshire, at Dartmouth College, where several experts in computer science (Allen Newell, Herbert Simon, Marvin Minsky, Oliver Selfridge and John McCarthy) were present, discussing automation; or rather, the ability of machines to perform human tasks.

Currently, artificial intelligence is present in our daily lives, without us even being perfectly aware of its existence.

When talking about New Technologies, one has in mind a set of creation or development technologies that are part of the so-called "digital revolution".

Technology has proved to be useful, on the one hand, making us experience and create experiments and, on the other hand, facilitating our communication regardless of the latitude of the place where we are.

Many of the instruments we use and the tools we use work, in particular, through applications that emerge from AI.

Artificial Intelligence (AI) progresses at the speed of light, promising to transform society and knowledge in all areas, from science to education, passing through industry, agriculture, transport, among others.

AI is one of the most revolutionary technologies of our day. It is an area of computing that aims to develop systems capable of performing tasks that would generally require human intelligence to be realized[2].

These systems are designed to be able to learn with data, to recognize patterns, to make decisions, to solve problems and to interact intelligently. These tasks range from simply voice or image recognition, to undergoing medical diagnoses, weather forecast and even a financial analysis.

Within this context, we will not need a great effort to think about technological solutions aimed at law.

Such challenges are not limited to AI, and other technologies should be highlighted, such as *Blockchain*[3], as a technology that allows periodic storage of information and batch transactions, and can be used in various fields, namely in Law, in

[2] John Mccarthy, *What is artificial intelligence?* 2007. Available in: https://www.dioc hnos.com/about/McCarthyWhatisAI.pdf.

[3] Massimo Di Pierro, *What is the blockchain?* Computing in Science & Engineering, 2017, 19.5: 92-95.

Registrations (Civil, Commercial, Building, etc.) and the execution of Smart Contracts[4]; The *Internet of Things* (IoT)[5], as a technology that, according to the National Cyberrseness Center (CNCs), "*comprises all the devices and objects that are qualified to be permanently linked to the Internet, being able to identify themselves on the network and communicate with each other*" and that, by virtue of its operation, which is data collection, can easily trace the profile of the individual, his habits, preferences and choices, which claimed the intervention of law in relation to personal data protection[6]; and *Augmented reality* (AR) and *Virtual Reality* (VR), (AR) as a technology that combines real-world elements with 3D virtual elements, allowing the interactivity between (real and virtual) objects in real time and (VR) as a connection technology between a user and an operating system through 3D graphics or 360º images, aiming to create the sensation of presence through computational techniques, which, in their convergence, will lead to what some designate by metaverse - for example, although embryonic, remote meetings, at all levels, during and after the COVID 19 pandemic, demanding extra attention from the legal world, especially within the intellectual property, copyright, personality rights, data protection and, of course, in the context, of criminal law[7]; and the *Drones* that are "aircrafts" capable of capturing and transmitting images, delivering objects and being used in playful activities, and can have many applications, from mapping, inspections and safety of infrastructure, to search and rescue, fire protection, as well as Journalistic purposes, which also demands special attention of Law, especially in the protection of the right to intimacy and private life, data protection and security.[8]

Nowadays, one of the biggest concerns when we talk about AI is its impact on professional activities.

It is believed that AI will influence many of these activities as we know them in today's world, probably and naturally leading to professional retraining and the emergence of new professions.

Since predictions about AI in the field of employment do not always seem to be in unison, it is important to highlight a study released in 2013, carried out by Carl Frey and Michael Osbourne, where it was predicted that 47% of jobs in the US would be replaced by AI.[9]

In another study, more current, from 2016, carried out by Melanie Arntz, Terry

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[4] Pedro Vilela Gonçalves, Resende; Rafael Coutinho Camargos, *Blockchain, smart contracts e 'judge as a service'no direito brasileiro*. II Seminário Governança das Redes e o Marco Civil da Internet: globalização, tecnologias e conectividade. Anais... Belo Horizonte: Instituto de Referência em Internet e Sociedade-IRIS, 2017, 207-212; Delber Pinto Gomes, *Contratos ex machina: Breves notas sobre a introdução da tecnologia* (Blockchain e Smart Contracts). Revista Electrónica De Direito–Outubro, 2018.

[5] M. Umar Farooq, et al., *A review on internet of things (IoT)*. International journal of computer applications, 2015, 113.1: 1-7.

[6] Matheus Alencar De Almeida et al. *Internet of things (iot) e direito: principais funções e vantagens*. Facit Business and Technology Journal, 2022, 1.33.

[7] Timothy Jung, M. Cluaudia Tom Dieck, *Augmented reality and virtual reality*, Ujedinjeno Kraljevstvo: Springer International Publishing AG, 2018, p. 75; Franziska Roesner et al. *Augmented reality: hard problems of law and policy*. In: Proceedings of the 2014 ACM international joint conference on pervasive and ubiquitous computing: adjunct publication. 2014. p. 1283-1288.

[8] Jesús Jiménez López, Margarita Mulero-Pázmány, *Drones for conservation in protected areas: present and future*, Drones, 2019, 3.1: 10.

[9] Daniel Oliveira, *O admirável mundo sem emprego.* Expresso, Sociedade, 08.06.2017. Available in: https:// expresso.pt/sociedade/2017-01-08-O-admiravel-mundo-sem-emprego.

Gregory and Ulrich Zierahn, it was estimated that such substitution would reach 9%.[10]

In 2019, according to the McKinsey consultancy, a balance in the employment balance was estimated until 2030, with losses of 20% and gains in the same proportion, with small variations.[11]

It seems indubitable that, if on the one hand, AI will occupy some of the activities carried out by Man, on the other hand, the business world will have to be able to optimize the tasks destined to human work.[12]

It is important, then, to understand the extent to which the NT can contribute to the world of Law, especially, in what concerns us now, which is international arbitration.

3. The arbitration's role in the dispute resolution's universe

Arbitration is a form of dispute resolution that involves the use of an independent arbitrator or panel of arbitrators to resolve a dispute.

It is an alternative to state justice and is often used in commercial, contractual and investment disputes.

The role of arbitration is to provide for a quick, efficient and confidential way of resolving disputes.[13]

Voluntary arbitration, being an emanation of the principle of autonomy of the will of the parties, allows, whenever a dispute breaks out it can be submitted to arbitration (arbitrability of the dispute), that the parties can pass, immediately, to arbitration. They can do so, as we know, through an arbitration agreement, in two ways: either they foresee, in advance, such a situation, with an arbitration clause, or when the dispute arises, they decide to go to arbitration, arbitration commitment.

The main advantages of this alternative dispute resolution method are: its speed, as the arbitration process is less formal than the judicial process; the possibility for the parties to choose arbitrators with precise technical knowledge; true experts in the field; the neutrality of the arbitration forum, given the origin of the parties and respective legal systems; impartiality[14] and independence of arbitrators; and confidentiality[15], which is a very important characteristic for the business/industrial world and with special emphasis on international arbitration.

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[10] Melanie Arntz, Terry Gregory, Ulrich Zierahn, *The risk of automation for jobs in OECD countries: A comparative analysis*, 2016, p. 112.

[11] Mckinsey & Company. *Inteligência artificial e o impacto nos empregos e profissões*, Agência Brasil. 01.09.2020. Available in: https://agenciabrasil.ebc.com.br/geral/noticia/2020-08/inteligencia-artificial-e-o-impacto-nos-empregos-e-profissoes.

[12] Rui Fava, *Trabalho, educação e inteligência artificial: a era do indivíduo versátil*, Penso Editora, 2018, p. 42.

[13] Maria João Mimoso, *Arbitragem do comércio internacional. As medidas provisórias e cautelares*, Quid Juris, 2009.

[14] If, eventually, an arbitrator has doubts as to his ability to act impartially or independently, he must refuse his appointment. This principle must apply regardless of the stage of the arbitration process. This is a fundamental principle enunciated in the International Bar Association (IBA) Guidelines on Conflicts of Interest in International Arbitration. These soft law instruments have the main goal of dispelling doubts and fostering confidence in the arbitration process, guiding and clarifying behavior within the scope of international arbitration.

[15] Regarding to confidentiality, we would say that this is a principle that underpins arbitration, through which it is intended to protect information in the process and whose publicity could cause damage to one of the parties involved.

However, arbitration also has its disadvantages.[16] One of the main ones is that the arbitrator's decision is final and binding, which means that the parties have no right to appeal the decision. This can only be syndicated through opposition/annulment, fulfilling certain requirements for that purpose, previously established in the voluntary arbitration laws.

However, this disadvantage appears, at the same time, as an advantage, indeed an attribute of arbitration speed, although the possibility of appeal against the arbitration decision, by inadmissible rule, can, in commercial arbitration, be foreseen by the parties themselves.

Besides that, arbitration can prove to be more expensive than the court process, due to costs, arbitrators' fees and expenses related to the process.

All of this is easily equated in an international, complex arbitration, with the desired neutrality of the arbitral forum, not connected with the country of origin of any of the parties involved, with arbitrators of different nationalities and with displacements of all the intervening parties in the process, including the proxies.[17]

Within the international commercial relations, arbitration has proved to be, especially in the last forty years, the normal way of resolving disputes between operators of international trade, not neglecting national arbitration, especially in the context of disputes arising from consumer relations.

In the context of international arbitration, increasingly complex causes arise on a global scale, requiring mechanisms capable of overcoming different cultures, legal systems and languages.

We know that, in recent years, in addition to the disadvantages mentioned, several obstacles have been pointed out to arbitration, *e.g.,* greater procedural delays due to the complexity of the issues presented, the need to extend deadlines, analysis of a significant volume of documents and breach of impartiality of the arbitrators.

In this sense, and to facilitate the use of arbitration in less complex cases, the concept of accelerated arbitration has recently emerged, already made available by some of the most prestigious arbitration institutions.[18] It is intended to reduce time and costs for lesser value causes.[19]

Also seeking to contribute to greater speed and accessibility of arbitration, the United Nations Commission on International Trade Law (UNCITRAL) adopted, on July 9, 2021, the so-called UNCITRAL Rapid Arbitration Rules, establishing in its article 3 a general obligation for the parties and the arbitral tribunal to act "expeditiously" and encouraging the use of "any technological means", including remote hearings. All this in an attempt to facilitate the conduct of the process, although always safeguarding the due process of law. The aim is to shorten the duration of arbitral proceedings through a

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[16] Guy Robin, *The advantages and disadvantages of international commercial arbitration*, International Business Law Journal, 2014, 131.

[17] Maria João Mimoso, *The myth of absence of lex fori towards the international arbitrator*. 2017.

[18] Maria João Mimoso, *Accelerated arbitration: An expedited method of resolving disputes*. 2022.

[19] Irene Welser, Christian Klausegger, *Fast Track Arbitration: Just fast or something different?* Austrian Arbitration Yearbook, 2009, 259.260: 267-69; Carlos Esplugues, *Los trabajos de la cnudmi en materia de arbitraje acelerado y el mantra de la celeridad (The Work of Uncitral on Accelerated Arbitration and the Mantra of Celerity).* Revista Argentina de Arbitraje, 2020, 1.

simplified procedure.[20]

However, complex arbitrations continue to take place in the business world on a global scale, increasingly demanding mechanisms capable of implementing greater speed and efficiency.

Technological development has undoubtedly changed the ancestral paradigm of social relations and, consequently, the modes and means of conflict resolution. The immeasurable amount of information contained in cyberspace has created a reality in which the processing of data and the creation of representations assume enormous influence.

4. International arbitration handicaps

International commercial arbitration has shown, throughout its course, several negative aspects[21], primarily, as already stated, very high costs due to the arbitrators' fees, the matter of fact streamlining through large volumes of documentation, production of evidence, the travel of all participants and other associated expenses.

The private nature of international commercial arbitration can lead to a lack of transparency, especially in investor/state arbitrations and, consequently, to decisions that are not easily explained or understood.[22] With the practice of arbitration, it was proven that the decisions taken by private arbitrators, in confidential procedures, had an impact on the lives of populations in the States hosting the investment. Although legally admissible, they began to be questioned. Transparency means, specifically, audiences with assistance, access to information and documents.

With regard to the parties, protagonists in international commercial arbitration, there is often talk of their inequality. Large multinational companies, headquartered in countries with greater resources, have advantages over smaller ones, especially in terms of access to this way of justice, and the ease of bearing the global costs of arbitration. Regarding this, the financing of arbitration by third parties arose, from which we highlight, in particular, the conflicts of interest between the third-party financer and the arbitrator, as well as the fears created about the financial capacity of the financed party.[23] All these factors can compromise the integrity of the arbitration process, prompting reflection on the set of duties of the financed party and the arbitrator appointed by it.

International commercial arbitration decisions are generally final and cannot be reviewed by Courts, which requires special attention regarding the production of evidence, free conviction of the arbitrator and its decision.

In some cases, arbitrators have proved to be not completely independent and impartial and, therefore, susceptible to external influences, pressure from interested

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[20] The UNCITRAL rules require that the proceedings are to be conducted by a single arbitrator, setting a fixed deadline for rendering the sentence. They foresee that the costs of arbitration are more reduced, setting limits to the volume of documents to be presented, questioning of witnesses and hearings.

[21] Ana Frazão, *Arbitragem, confidencialidade e transparência*. 2017.

[22] Raúl Martínez Cofré, Ignacio Vásquez Torreblanca, *Arbitraje internacional de inversiones: los efectos negativos en la soberanía ambiental.* Cuadernos internacionales de estudios, 2019, 135.

[23] Maria João Mimoso, Joana Lourenço Pinto, *The Third-Party Funding in Arbitration: A Challenge in Times of Crisis.* European Journal of Marketing and Economics, January - Volume 4, Issue 1, April 2021; Rachel Denae Thrasher, *Expansive Disclosure: Regulating Third-Party Funding for Future Analysis and Reform*. Boston College Law Review, 2018, 59: 29-35.

parties or even carrying out the interests of lobbies that exist behind the scenes of arbitration.[24]

In general, international commercial arbitration is seen as an alternative to the judicial power integrated into the State structure, but it has challenges and limitations.

It is important to carefully evaluate the negative aspects before opting for this form of international commercial dispute resolution. However, new technologies, due to the automation of various tasks of the arbitration procedure, can definitely contribute to implementing greater security in the relations between the arbitral tribunal and the parties involved, especially in terms of the appointment of arbitrators, with special emphasis on their impartiality.

5. NT's contribute to arbitration

New technologies, especially Artificial Intelligence (AI) and Blockchain, have definitely contributed to major changes in justice *modus operandi* in general and, consequently, in arbitration.[25]

We cannot forget that arbitration is one of the maximum manifestations of the "principle of free will", proving to be fertile ground for the implementation of those technological means.[26]

NTs are not only an instrument for communication or storage and interpretation of data, they also fulfill other purposes, such as the implementation of greater transparency, faster resolution of disputes, minimization of costs, among other concerns demonstrated by international trade operators.[27]

AI, performing tasks that normally require human intelligence, uses machine learning techniques[28], natural language processing, computer vision or others to achieve this goal. In addition to being widely used in many sectors, namely health, transport, finance and industry, it has an exponential capacity to radically change the way we live and work.

However, it also presents important ethical and social challenges, demanding great reflection and measures to guarantee its responsible use. We are referring to privacy, security, employment and equal opportunities. It is, therefore, essential that people are aware of the benefits, but also the possible risks, of these technologies.

Since AI's goal is to create technologies capable of imitating human intelligence and performing tasks autonomously or semi autonomously, its use has proved to be important in streamlining extrajudicial litigation, especially due to its great ability to analyze large amounts of information in seconds, as well as identifying patterns and trends that escape human activity, which entails great advantages for the world of law,

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[24] Murray L. Smith, *Impartiality of the party-appointed arbitrator*, Arbitration International, 1990, 6.4: 320-342.

[25] Fernando Martín Diz, *Justicia digital post-covid19: el desafío de las soluciones extrajudiciales electrónicas de litigios y la inteligencia artificial*. Revista de Estudios Jurídicos y Criminológicos, 2020, 2: 41-74.

[26] Carlos Alberto Carmona, Vitor Silveira Vieira, 28. *Inteligência artificial e processo arbitral.*

[27] Silvia Barona Vilar, *Inteligencia artificial o la algoritmización de la vida y de la justicia: solución o problema?* (*Artificial Intelligence or the Algorithmization of Life and Justice: Solution or Problem*), 2019, 18-49.

[28] J. McCarthy, E. Feigenbaum E., *In Memoriam, Arthur Samuel: Pioneer in Machine Learning*, AI Magazine Volume 11, Number 3, 1990, pp 10-11.

especially for the topic we are addressing.

In addition, AI can be programmed to apply rules to a specific situation, which ensures exemption and impartiality in decision-making. This proves to be especially useful when dealing with complex issues or when it's a large amount of information, as AI is able to process all the information more efficiently than the human being.

Speed and economy in out-of-court dispute resolution can also be achieved with the use of AI. The possibility of automating processes, including the collection of data, documents analysis and reports creation. Additionally, AI can help facilitate communication between the parties involved, which can speed up the resolution process.[29]

As for international commercial arbitration, we found that AI can influence the steps of the procedure in several ways.[30]

AI can prove to be very important for data analysis, proving to be able to analyze large amounts of data/information/facts related to a commercial conflict. We are talking about the contracts themselves, the arbitration regulations, the applicable laws and other documents considered relevant. This can help arbitrators to identify patterns and trends that can be useful in their decision, reaching a fairer solution, because it is more informed.

Regarding administrative tasks, automating them through AI can make them less tedious, facilitating the review of documents and the identification of relevant issues. [31] Therefore, it will allow arbitrators to focus on the most important and complex issues.

International disputes necessarily involve parties with different cultures and languages, causing difficulties in communication, that can be overcome with the use of automatic translation technologies, speech-recognition based on transcriptions, which may occur in real time, with identification of its speaker.

Parties are often based in geographically distant locations, which will make it difficult to conduct face-to-face hearings. Technologies such as videoconferencing can help overcome this barrier.

Also, for the arbitrators' appointment, in the absence of agreement between the parties and the arbitrators themselves or in the absence of appointment, and although such situations are provided for in the respective voluntary arbitration laws and in the regulations of most Arbitration Centers, AI may help with those appointments by providing a list of arbitrators that are appropriate to the situation presented, considering the circumstances, the number of pending and carried out arbitrations, the expertise, the time it takes for the sentences to be rendered, and even verifying whether there is a potential conflict of interest interests.

As for the predictability of results, AI can be used to predict the outcome of a dispute based on historical data of similar arbitral decisions, arbitral jurisprudence, although the private nature of arbitration and its confidentiality may make it difficult for

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[29] Ankit Malhoutra, Faizan Ahmad, *Artificial intelligence and international arbitration*. Novos Estudos Jurídicos, 2022, 27.2: 258-281.

[30] Ricardo Durán Vinazco, Edilberto Melo Rubiano, *Arbitraje en Colombia: de la Virtualidad a la Aplicación de la Inteligencia Artificial en la Resolución de Conflictos desde un Modelo de Innovación Regulatoria*. Verba luris, 2022, 48: 159-187.

[31] Mónica María Bustamante Rúa et al. *Mecanismos alternativos de solución de conflictos (masc) e inteligencia artificial (ia) para la solución de controversias en línea (scl): una apuesta por la descongestión en la administración de justicia.* Revista de Direito, Estado e Telecomunicações, 2020, 12.1.

arbitral decisions to enter the source data from certain databases. We believe, without a doubt, that the arbitration jurisprudence, duly treated, will be able to help the arbitrators to have a better performance in the result and, in an earlier moment, favor the expectations of the parties regarding the result of the arbitration process.

As for the implementation of greater procedural speed, AI can undoubtedly speed up the process, given that the automation of certain tasks will allow more time for arbitrators, allowing them to concentrate on issues of greater technical relevance.

Regarding the arbitration decision, AI can provide decisions with greater consistency, eliminating some human errors, guaranteeing greater objectivity in the its grounds and thus helping to make the arbitration process more transparent, making decisions more intelligible for the parties, hence facilitating the perception of the arbitral tribunal motivations.[32]

International arbitration is often criticized, as already noted, for the lack of transparency, both in commercial arbitration and in investment arbitration. NTs, with their multiple tools, can also increase transparency, allowing the online publication of documents and the recording of hearings. However, in international commercial arbitration, the confidentiality desired by the parties may prevent access to the intended information. This will undoubtedly be a great challenge for private arbitration.

In short, new technologies can, on the one hand, be used to provide recommendations and knowledge based on data, thus helping arbitrators to make more informed and fair decisions, contributing to greater impartiality in the relationship of all parties involved, and, on the other hand, they can help to make the arbitration process more transparent, providing a detailed explanation of the decisions and making the motivations that led to the arbitral decisions more accessible to the parties.

6. Conclusions

Disputes arising from international private legal relationships often involve complex questions of fact and law. International commercial arbitration, the preferred mode of resolving disputes arising from this type of relationship, has revealed, throughout its course, several negative aspects, mainly high administrative costs, significant fees for arbitrators and lawyers, some procedural delays, large volumes of documentation and consequent high production of evidence, travel of the involved parties and other associated expenses.

Due to the flexibility of the arbitration process, it was soon felt that NT, such as data analysis and artificial intelligence, could prove to be extremely important tools for arbitration, whether in legal research and document analysis, or in carrying out of hearings by videoconference, or even in the appointment of arbitrators. Thus, artificial intelligence can be a valuable tool in out-of-court dispute resolution, helping to make the process fairer, more efficient and faster.

However, it is important to note that AI should not be seen as a unique solution and that human intervention in supervising and evaluating the results produced by AI should not be overlooked.

The European Guidelines indicate that AI must observe legality, ensuring compliance with current laws; it must be ethical, ensuring compliance with principles

[32] Carlos Alberto Carmona, Vitor Silveira Vieira, 28. *Inteligência artificial e processo arbitral.*

and axiological values; it must be robust, both from a technical and social perspective, so that the system causes as little harm as possible.

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