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25. Artificial Intelligence in International Arbitration: The World is All That is The Case

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> *'A robot may not injure a human being or, through inaction, allow a human being to come to harm.*
>
> *A robot must obey the orders given by human beings except when, such orders would conflict with the First Law.*
>
> *A robot must protect its own existence as long as such protection does not conflict with the First or Second Laws'.*
>
> **Isaac Asimov, Runaround (1942)**

The scope of this article is to investigate how artificial intelligence ('**AI**') is being used in the field of international arbitration.

In more detail, I will endeavour to navigate the legal, ethical, and philosophical problems that the use of AI tools is either posing, or likely to pose, in terms of the integrity and reliability of the arbitration system.

After a brief introduction, I will firstly address the issue of the definition of Artificial Intelligence. I will then give an overview of AI tools that are being used in the International Arbitration field. Thereafter, I will examine the main ethical and legal problems raised by the use of AI tools, by focusing on different phases of the arbitral proceedings. Lastly, I will present the conclusions.

1 Introduction

Over the course of recent decades, technological developments, including the impressive
P 378 improvement of AI, have triggered a revolution comparable to that ● of the Industrial Revolution, and which is destined to have a disruptive impact over our lives.

At the very core of such a revolution lies a profound change in the paradigm of language. Indeed, mathematical writing is now used alongside the roughly 53 centuries old writing which humanity invented through the Greeks' conversion of the Phoenician consonant alphabet into a vowel-consonantal system (3) . Aside our alphabetical language, which humanity has been using to interpret and describe the world thus far, now stands computational language, which is transformed from a non-verbal source and through a combinatory function is recomposed into a new form. As such, it is a dematerialised language.

Not only can numerical writing transmit messages rapidly, through vast diffusion and beyond territorial boundaries: this new form of writing represents a symbolic revolution. This means that it has changed the way humans form and build on the perception of objects and the perception of moral values: after all, symbols lie at the root of intelligent actions. (4)

The technological revolution that the world is now experiencing is already having a huge social, cultural and even political impact, there for all to see in our daily life. Currently, new technologies are also proving pivotal in handling the Covid-19 pandemic outbreak, and in allowing people to adjust their lives to the new normal.

As far as the legal field is concerned, artificial intelligence tools are progressively taking hold and AI is already touching many areas of the law. Indeed, AI is already significantly affecting the manner in which legal business is conducted (including block chain and other technologies), transactions are entered into (including smart contracts) and disputes are raised and resolved. (5)

International arbitration makes no exception in this respect, although lawyers seems to be somehow reluctant to acknowledge the fact —I myself was strongly biased when I initially approached this subject. Yet, AI tools are already commonplace throughout most of the arbitral proceeding.

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The debate on the entry of artificial intelligence into the field of arbitration has, in recent years, been very lively. Although the discussions have been largely focusing on (a) the pros and cons of the use of artificial intelligence in international arbitration, mainly in terms of time, efficiency and costs, and (b) the lawyers' concerns that artificial

intelligence tools tailored to work in the field of law may eventually turn them into Silicon Valley's next victims, (6) yet the international arbitration community seems to be pretty much aware of all the challenges that the use of machines is already raising and is likely to change in the future, also in terms of ethical and legal problems. (7)

Indeed, it is precisely our responsibility, as international arbitration practitioners, (as it is of all humankind) to ensure in-depth discussion on such significant issues in order to best prepare for their ultimate arrival: the future is just around the corner.

2 What do we Mean by Artificial Intelligence?

Defining AI intelligence is no easy task.

The Oxford Dictionary, used as a starting point by prominent authors with extensive dealings on the subject, (8) defines artificial intelligence as the '[t]heory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision making and translation between languages'. (9)

In order to simplify, beyond the strictly technical definition of AI, which falls outside the scope of this article, AI may be broadly defined as the general process whereby large amounts of data (the so called 'big data') are combined with a powerful iterative data
P 380 processing system and intelligent ● algorithms, thereby enabling the software to learn automatically from patterns in the data. (10)

Some distinctions are generally used in the AI field which might help to navigate this vast new world, which lawyers are mostly unfamiliar with.

One such distinction is between 'Strong AI' and 'Weak AI'.

Whilst a Weak AI System basically mimics human reasoning without actually having it, a Strong AI system is able to think or reason independently, without using pre-programmed ways of human thinking or reasoning. (11) In other words: Strong AI assumes that machines do or ultimately will have minds, while Weak AI asserts that they simulate real intelligence: the question seems thus to be whether machines can be truly intelligent, or simply act as if they were intelligent. (12) After all, the very person who has coined the term 'artificial intelligence' (13) defined it as the process of 'Making a machine behave in ways that would be called intelligent if humans were so behaving'. (14)

A further relevant distinction to be taken into account is between these two types of AI: rule-based learning and machine learning —the latter being a mechanism which is able to identify patterns and vary algorithms on the basis of already existing data and user feedback. Deep learning models are a specific subset of machine learning: these are modelled on the structure of a human brain and are able to learn themselves without human intervention from massive volumes of data.

It might be interesting to note however, that remarkably, the reference point for defining artificial intelligence still is human intelligence —which makes the question even more third-rate, considering how difficult defining human intelligence may also be.

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3 The Array of Artificial Intelligence Tools in International Arbitration

Many AI tools are being used already in the field of international arbitration, and the trend reflects that users are increasingly optimistic as to the introduction of AI applications.

Indeed, the survey conducted in 2018 by the Queen Mary University shows, (15) *inter alia*, that 78% of respondents indicated that 'AI' is a form of IT worth using more.

It is beyond the scope of this article to enter into detail on all the AI applications that are used or may be used in the context of arbitration.

A useful and very clear classification has been made by some authors (16) who divided AI tools used in arbitration into four categories, based on their functional complexity. (17)

More specifically, a first category of AI tools can be used to carry out legal research more quickly and with more precise or focused results. A second group of AI tools may be used for the selection of suitable professionals, such as counsels, experts and arbitrators. A third group of AI tools may be used to facilitate certain procedural phases. By way of example, voice recognition devices may at some point substitute transcripts, AI tools may be used for evidentiary searches, for summarising pieces of evidence. Also, some of the compilatory parts of the awards may be drafted with the aid of AI devices. Finally, a fourth category may be used and qualified as tools of predictive justice. AI systems used for predicting the outcome of a dispute or even applied to the decision-making process fall under this fourth category.

Most of the AI tools described above proved very useful in terms of reducing costs and timing of arbitration and in supporting lawyers in those activities that are generally highly time consuming and expensive for the clients, such as document review and document production. (18)

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However, it is clear to all that the use of AI application in international arbitration poses some questions both at a legal and ethical level. Obviously, the intensity of the issues possibly arising from the use of artificial intelligence vary, depending on the specific tool and the specific phase of the arbitral proceedings which is concretely concerned, or on the specific interests or rights at stake.

By way of example: tools aimed at assisting in the document production phase may pose an issue in relation to the access to justice, as those parties which have not sufficient resources to procure the facilities could be highly affected. Tools aimed at supporting the selection of arbitrators, form the one hand proved very useful in mapping the relationship between arbitrators and council in terms of conflict check; yet, these may lead to some manipulation strategies by the parties and raise some concerns in case the relevant tools are used with predictive purposes. Tools for the selection of witnesses then raise even more serious dilemmas from an ethical perspective to the extent that they might lend themselves to the manipulation of the evidence-taking phase. Finally, predictive tools suitable for use in the field of justice are by far the most problematic of the AI resources.

Some of those problems will be dealt with in the following paragraphs, in relation to three specific phases of the arbitral proceedings.

4 Predicting the Outcome of the Decision

Predicting the future and reducing uncertainties in advance has always been, and still is, an innate need for human beings. Different times, different methods: while in the ancient times haruspices' divination was common practice, in 2017 a Turkish entrepreneur created Falladin, a fortune telling app transporting the tradition of Turkish coffee grinds straight into the age of AI. (19)

As far as the field of arbitration is concerned, recent years have seen the launch of several tools for data analytics, aimed at predicting the outcome of disputes.

Nowadays, there are several such products on the market, although each of them seems to achieve results by different methods, including the ‘game theory’ application. (20) Such tools are likely to be increasingly used in the future by lawyers, as well by litigation funders, whose interest in the outcome of an arbitration is merely financial. (21)

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Undoubtedly, predicting the outcome of a dispute through artificial intelligence mechanisms may bring with it many benefits. Just by way of example, when a lawyers' opinion is supported by the output of an AI machine, parties could be more inclined to settle a dispute, since they have a clearer idea of which way their arbitration could go.

However, the use (not to mention the delegation) of the predictive function to AI raises more than one question, and on many levels, either practical or political and ethical.

First, it should be considered that the reliability of any data-driven AI system lies in the so-called four Vs: Volume (scale of data), Variety (different forms of data), velocity (analysis of streaming data) and veracity (uncertainty of data). (22)

While the most important arbitral institutions have already taken many steps in the direction of making the award public, at least in part, arbitration —especially commercial— is still confidential. The scarcity of public data, which is typically inherent in arbitration, materially affects the first V: indeed, machine learning programs, which are based on probabilistic inferences, are data hungry. The less data available, the less accurate the prediction: for as much as international arbitral institutions may be tackling the transparency issue with obvious good will, the amount of case data generated from commercial arbitration is nevertheless completely inadequate as a tool for enabling AI to render an accurate prediction.

Here would appear to lie the precise difference between arbitration and some prediction experiments made in recent years.

In 2016, researchers at UCL, the University of Pennsylvania and the University of Sheffield, developed AI software which analysed the language used in submissions and previous judgments to predict the outcomes of the European Convention on Human Rights (ECHR). The machine was correct in 79% of cases. Likewise, a group of researchers worked on the prediction of US Court decisions, obtaining very accurate results.

Although the two experiments differed in several aspects, the enormous amount of data reviewed was the same for both models: the dataset for the ECHR project amounted to 584 decisions, while the US Supreme Court cases were more than 28,000.

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It is plain to see that relying upon such a huge amount of data input is just not possible as far as international arbitration is concerned, at least for the time being.

Second, changes in law over time affect the Velocity of the incoming data to be processed: this raises the problem of how AI models which are, by definition, based past

data, may deal with policy changes. Remarkably, this problem is inherent to all those systems which use the past to predict the future: after all, the creator of the Falladin App himself, stated that the tool is aimed at reading the future of a person ‘by evaluating a person's past’.

However, luckily enough, people (and even arbitrators) might still be somewhat unpredictable.

From an ethical perspective, there are also issues in cataloguing adjudicators' beliefs, tendencies, and decisions. This is certainly more problematic where national court judges are concerned, as the cataloguing and prediction of the judges' decision could somehow clash with the fundamental principle of the *juge naturel* and the freedom of choice of the judiciary system. However, it cannot be denied that from an ethical perspective, the arbitrators' profiling tendencies may also cause issues in the decision making and give rise to abusive conduct from either or both parties.

Furthermore, using AI to predict the outcome of a dispute could raise some concerns over the appointment of arbitrators and the efforts made by the arbitration community to boost diversity and transparency: indeed, should the AI tools be able to predict the arbitrators' decisions, that would probably lead to the reinforcement of fixed patterns in the appointing of certain specific arbitrators in certain specific disputes. (23)

Finally, a material (and provocative) question may be posed with respect to the possibility to foresee the outcome of an arbitration: shouldn't risk be an inherent part of the dispute?

5 Making the Decision

Using AI tools for carrying out legal decision making might seem more distant than it actually is.

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Indeed, artificial intelligence adjudicators are to some degree already being used where smart contracts (24) and blockchain are at stake. (25)

Also, some AI tools have been used in courts in assisting the adjudication phase already. By way of example, in Wisconsin v. Loomis the court relied on the decision supporting tool COMPAS to deny the indicted individual's request of parole.

The array of ethical dilemmas raised by the delegation of the decision-making process to a machine is so vast that it is almost impossible to address all of them.

At the very core of the topic lays a fundamental question: is it a basic right to have justice rendered by a human being? (26) To a certain degree, Constitutions and even arbitration laws basically assumes that there is an inherent value in being heard by a fellow human, who is subject to duties of fairness and respect. (27)

Indeed, although constitutions and legislations of most countries might not actually address the question, it is deemed reasonable to reply in the affirmative: humans should make justice, not machines, in accordance with the fundamental principles upon which democratic legal order was founded.

After all, most arbitration laws expressly provide that arbitrators must be persons having full capacity, (28) needless to say, machines do not fall under this definition.

Finally, and most importantly, as of today, machines are still unable to deliver the reasoning for their decisions, both in terms of causal chain, but also in terms of contextual explanation. Again, this is a fundamental difference with the ECHR experiment, the outcome of which went both ways: application/non-application of the sanctions. No reasoning for such outcome was provided by the system.

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However, providing a thought through decision is one of the fundamental features of legal decision-making and a fundamental right of the advanced legal orders. (29)

Hence, the need for reasoned decisions is likely to be the most significant barrier for AI-decision making, as AI basically works on a probabilistic basis. (30)

On the other hand, it could be argued that the bright side of using machines for decision-making, is that machines should not be affected by human bias.

Indeed, considerable time has passed since psychologists discovered systematic patterns of deviation from rational judgment, which have been catalogued in a continuously evolving list of cognitive biases. (31) This seems to be inherent to the way the human brain actually works: a distinction has been made by psychologists and neuroscientists between two kinds of thinking, one that is intuitive and automatic (System 1), and another that is reflective and rational (System 2). (32)

Whilst implicit biases, such as cognitive, cultural, ethical and gender bias, may have a distorting effect in decision making made by human beings, machines should instead be immune from such deviations. Were this to be the case, it would bring to bear two main consequences.

If there is a cloud here, it clearly does have a silver lining: decisions would be free of irrational deviations forever. On the other hand, decisions could also be deprived of all those intuitions, which the human 'touch' generally provides: the taking into consideration of grey areas, fairness, the ability to understand whether a witness is actually telling the truth and to pinpoint contradictions, the appreciation of extra-legal factors and the application of general principles such as that of good faith, can be seen as inherent to human thinking rather than to machine processes.

P 387 Besides, can we be really sure that machine decisions are completely free from bias? ● Data-based systems are good and reliable so long as the data they are fed are good and reliable. Hence, on closer inspection, should the input data be affected by human bias, not only machines would extract biased decisions as well, but these would also end up working as a bias multiplication, possibly perpetuating the systemic distortions.

This leads to a further negative aspect which could potentially affect the use of artificial intelligence for the decision making process in arbitration. Indeed, using the past to make the future (i.e., using the data related to past cases) would lead to conservative decisions, perpetuating trends and stifling the developmental process of change in human thinking and perception.

That would eventually restrain evolutionary jurisprudence, inevitably depriving justice of one of its most important social functions.

6 Challenging, Recognizing and Enforcing the Decision

The possible breach of fundamental rights or principles of public order as discussed above, could eventually raise difficulties during the phase of recognizing and enforcing a decision. On the other hand, depending on the specific seat where the award is made, such a violation could also provide grounds for challenging the decision.

So far as recognition/enforcement is concerned, the starting point is Article V(2) b of the Convention on the Recognition and Enforcement of Foreign Arbitral Awards (the '**NY Convention**'), pursuant to which 2. recognition and enforcement of an arbitral award may be refused if the competent authority in the country where recognition and enforcement is sought finds that the recognition or enforcement of the award would be contrary to the public policy of that country.

Hence, should the use of AI intelligence in one or more stages of the arbitration proceedings be considered as violating the public policy of the country where the award should be recognised/enforced, that would amount to solid grounds for refusal according to Article V(2) b of the NY Convention.

The questions to ask would therefore appear to be (a) what by public policy, provided
P 388 that an internationally recognised notion actually exists, and (b) whether ● and to what extent could the use of AI in the context of an arbitration proceedings theoretically breach public policy rules.

From an initial perspective, it is common knowledge that 'public policy' is a broad and variable concept, which changes considerably over time, also on the basis of the cultural, social and political context in which it resides. After all, the NY Convention itself does not define public policy, nor does it give any indication as to how to build the notion. Moreover, in practice, courts have varyingly used national, international and even transnational interpretations of the public policy exception. (33)

It is beyond the scope of this article to investigate whether a notion of public policy globally based, and on global values actually exists, and in the event that it did, of what would it comprise. (34)

However, whether assuming a transnational perspective of public policy or reasoning at a national level, it can be broadly said that public policy rules include those laws, the observation of which is necessary for the safeguard of political, social and economic organisation, in dealing with basic principles which are inherent to the legal system.

That being said, and although it has been observed that for the purposes of Article V(2)b of the NY Convention, the notion of public policy should be narrowly construed, (35) it cannot be excluded that the use of artificial intelligence in arbitral proceedings may somehow clash with certain public order principles.

Indeed, as discussed, depending on the specific tool used and the specific phase of the actual arbitration concerned, the principle of due process, for example, could be affected.

Such a set of circumstances extends even beyond the level of consent which parties might be able to provide regarding the use of certain AI tools: by way of example, while the use of AI systems would raise no significant issues in the document review phase, as
P 389 long as the parties have given their consent, the lack ● of a clear and logical reasoning of the award, could certainly raise due process violations and provide grounds for a refusal of enforcement.

At the same time, as most of the national, legal orders allow the challenge of the award in accordance with the violation of public policy rules, the use of AI could also represent grounds for setting aside the awards.

7 Conclusions

The considerations outlined above do not claim to be exhaustive, nor to provide definitive answers to a problem which is both delicate and still deep in the process evolution.

However, some conclusions can be clearly drawn.

The first, is that no absolutely reliable answers can be provided with respect to the numerous issues raised by the use of artificial intelligence in the international arbitration sector. It is important, therefore, that the subject be approached without any ideological bias or prejudice.

Carlo Rovelli, an Italian physician, put it brilliantly: 'Our prejudices about reality are the result of our experience, and our experience is limited. We cannot take the generalisations that we have made in the past as gospel. Nobody said it better than Douglas Adams, with its ironic tone: *There are some oddities in the perspective whit which we see the world. The fact that we live at the bottom of a deep gravity well, on the surface of a gas-covered planet going around a fireball 90 million miles away, and think this to be normal, is obviously some indication of how skewed our perspective tends to be, but we have done various things over intellectual history to slowly correct some of ours misapprehensions.* Let's expect to have to change our metaphysical-provincial outlook. It's time we take the new concepts we learn about the world seriously, even if they clash with our prejudices about how things really are'. (36)

The second, is that the use of artificial intelligence can be defined as a true technological evolution, which can prove extremely effective in terms of time and cost savings in the course of arbitration, but that its application pose serious ethical and legal problems, which can interfere with the integrity of the arbitration system and which must therefore be used with caution.

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To this extent, guidance can be sought from clear instruction provided by the Ethical Charter for the use of AI in judicial systems and their environment, and as adopted by the European Commission for the Efficiency of Justice (CEPEJ) on 3-4 December 2018, which set out some very sharp principles that must be met in using artificial intelligence in the legal field, namely:

a) Principle of respect for fundamental rights (ensure that the use of AI tools does not conflict with fundamental rights);
b) Principle of non-discrimination (by way of example in terms of access to justice);
c) Principle of quality and security (in terms of certified sources, intangible data and secure technological environment);
d) Principle of transparency, impartiality and fairness;
e) Principle 'under user control' (ensure that users are duly informed and in control of the choices made).

The third, is that human interaction is still, to this day, fundamental to the appropriate, wise and well-considered use of artificial intelligence in the field of arbitration.

As mentioned above, the first use of the term 'artificial intelligence' is to be attributed to John McCarty who defined artificial intelligence as the process of 'Making a machine behave in ways that would be called intelligent if humans were so behaving'. (37)

However, humans and machines do not behave the same way. Just by way of example, and to put it with the words of John Searle, (38) computers themselves cannot think. Indeed, 'thinking' in its broader and most noble sense, is not a mere interconnection among neurons: rather it includes consciousness, the feeling of experiencing things (the so-called 'qualia', i.e., basically the subjective and conscious experience), sentience, discernment, judgment, empathy, intuition.

As a result, while machines are indeed able to manipulate symbols (sometimes even better than humans do) human beings are still the ones interpreting said activity at the end of the day.

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After all, the basis of law is essentially social and political, and justice is also based on equity and fairness. (39) This is why the conduct of arbitration should still be handled by humans, although with the support of Artificial Intelligence in case needed for boosting efficiency.

There is absolutely no doubt, at least for the time being, that the contribution of a human being in the use and interpretation of machine-driven output is still necessary to the safeguarding of fairness and dependability in the justice system.

Hence, after all, machines are going to steal our jobs just not yet.

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