INTERNATIONAL ARBITRATION SPECTRUM AND ITS' INCONSISTENT BUT COLORFUL INTERACTION WITH EMERGING TECHNOLOGIES: A CONTEXTUAL ANALYSIS

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ABSTRACT

The growing impact of artificial intelligence, covering themes such as disruption, regulatory, and reconfiguration of substantive, procedural, and enforcement mechanisms, can be felt through increasing inequality, exclusion, and discrimination in terms of access to the technology, data sets, and understanding of the workings and functioning of these ever-evolving, complex, and dynamic processes.

The paper aims to elaborate on the evolution, impact, and disruption brought in by emerging technologies and how Arbitration as a dispute resolution mechanism is a cost saving, time-efficient, and resource-efficient process compared to other modes of resolving disputes.

Varying types of technologies led by increased datafication, computing power, and machine learning capabilities have led to different kinds of economic activities halted, thereby leading to the need for reconfiguration of their governance and operation, and as is discussed in the paper, the various types of challenges arbitration process face in their implementation. This article debates multiple limitations associated with the self-executing nature of blockchain-based Arbitration and critiques them in this critique. In addition to the same several various related to the inclusion of electronic arbitration clauses will be discussed, such as definitional problems, issues associated with timely completion and presentation of evidence in the proceedings, ethical concerns related to automated arbitration clauses and proceedings, and in the light of these challenges, solutions evolved or in consideration, arbitral institutions such as ICC, IBA, UNCITRAL, and another regional mechanism in the situation of developments globally, shall be studied briefly.

The article's conceptualisation is based on a comparative and analytical lens for studying, consolidating, and critiquing facets of technological innovations in international arbitration and resolving technological disputes through international arbitration to cover domestic and transboundary disputes.

The final aim is to conclude, backed by legal developments and presentative viewpoints of various institutions, that negative perceptions of an artificial intelligence-based arbitration do not dominate general and wide recognition of technology resolving time, space, and saving factors associated with technological revolution.

Keywords: AI, Computing power, Arbitration, Ethics in Arbitration, ISDS, ICC, EU Consumer legislation, Blockchain, B2B, B2C, and P2P, Document delivery, New York Convention on Enforcement of Arbitral Awards, UN Working Group Proposal II, EDI, NFT, Silicon Valley Centre for Mediation and Arbitration, IBA Rules on Taking Evidence in International Arbitration, Arbitral Fairness, ethics, Transparency, Lex Mercatoria, Lex Informatica, Adjudication, Party autonomy

INTRODUCTION

"Technology will outstrip AI governance in 2024 as regulatory efforts falter, tech companies remain largely unconstrained, and far more powerful AI models and tools spread beyond the control of governments"- Time Magazine, January 22, 2024[1].

The revolution brought by leap-bound changes in algorithms, datasets, and artificial intelligence is here to stay[2]. A reflection of this trend could be depicted in terms of fifty million transactions occurring over the medium of Ethereum in 2018[2]. This astonishing number is attained in supporting commerce by intelligent contracts or self-executing codes that immutably transfer assets between users[3]. Both legal and policy spaces affecting and engaging international arbitration have, then indeed, seen an interwoven exchange with technology in light of the evolution of AI. It is characterised by an economy which is driven by data, which includes collection, organising, aggregation, analysis, exchange, and exploitation of digital information whether for use in production ("smart agriculture[4]", "smart manufacture")[5], the sale of goods and services through e-commerce, or trade-in data itself (whether for advertising, solicitation, assessments whether for credit ratings)[6]. This economy driven by hunger for more data, is focused on generating data from interconnected devices, that in turns enables in process of innovation, production, operation, sale, and consumption of goods and services[7]. According to a report released by Mckinsey in 2014, total flows of data overpowered sale or supply of goods[8].

While it is an ever-evolving phenomenon that technology has been and is being developed through computing power, storage, and bandwidth to exploit data[9], 5G technology is one such application that enhances real-time communication and transforms the scale of operations for services. The prospective application of blockchain technology is being tested to increase efficiency and transparency in trade, streamline industrial processes, and increase cost efficiency. Moreover, with the increasing need for transparency, accessibility, reduced cost and simplicity, legal professionals, although conservative in their approach to technology, have been adopting these professionals and have been resorting to Legaltech (Anthony, 2020).[10], which has been revolutionising the industry and is developed at every stage of legal processes and it is evident that it is corporate law which is disrupted far more than the other fields[11].

On the other hand, keeping in mind the cycle of innovation, research and development, field of arbitration or dispute resolution is no different, as digital disruption has created tools necessary for the legal field to solve their problems. These emerging technologies and dispute resolution have forged a dynamic, two-way relationship. As argued later on in the Article, this relationship is not one-sided but a constant interplay. Despite of the boon generated in particular, these technologies (more so the Internet) have increased the gravity, complexity, and number of traditional problems. On the other hand, it has also generated required tools, impertinent for smoothly solving their problems. Such promulgation in technologically innovative tools is evident with the advent of open-network electronic commerce in B2B, B2C, and P2P scenarios, resulting in several types of relationships necessitating regulation. Nevertheless, these regulations have only at times been in demand in closed systems, which have been functioning proficiently through the medium of Electronic Data Interchange (EDI).[12] Since the 1960s (Ortiz, 2025). However, the question arises of whether these technologies need to be regulated?[13]

Nevertheless, before heading out on an adventure to understand various utilities associated with using of digital technologies and artificial intelligence, it is essential to know how these 'tech processes' work. Fundamentally, this development implies consolidating four

innovative digital technologies with legal data to render services at a capacity that exceeds human tendencies. Varying applications emerging from revolutionising forms of technologies can thus be based on algorithms, which then use Big Data.[14], blockchain technologies[15], machine learning[16], deep neural learning, cloud computing, and text-mining[17]. Some other clamorous uses relate to making summaries of the documents, identifying relevant data findings using text-mining technologies[18], predictive justice[19] using machine learning technologies. The interconnected uses of emerging technologies and artificial intelligence ,also relate to utilising Big Data to forecast the probability of winning disputes, and self-executing smart contracts to enumerate a few.[20]It is astounding to witness, in this day and light of the overconsumption of digital devices, cloud computing, and multimedia, that few of these technologies have reached such a shocking degree of sophistication that they can determine a judge's tendency to deny certain motions, such as stay of proceedings and get request approved to obtain external experts. These above-mentioned enumerable ways to apply technologies in arbitral practices also include appointing arbitrators. However, this may exacerbate the criticised practice of 'profiling.'[21]

Besides differing uses these innovative technologies have to offer, the article has an intention, to briefly touch upon the impactful effect these technologies might have on legal processes, as some of these technologies, such as e-discovery and online documents, are already well tested. It is also considered an inherent component of the legal processes. In contrast, other technological methods, such as blockchain, machine learning, and big data, are more disruptive, and their application needs to be thoroughly tested. As will be discussed in the article, one such instance can be stipulated concerning Blockchain-based intelligent contracts, for which various applications have been developed but have to be fully put into practice. Other technologies are in the process of being developed and tested. For example, in the case of automated Arbitration based on artificial intelligence, doubts arise concerning the ability of a computer to solve legal disputes and the impacts that this process may have on legal principles such as: 'due process'.[22]

As a response to the leaps and bounds of advancements made by artificial intelligence and digital technologies (Ministry of Justice, 2017), several legal groups and Bar associations have lent their support to the progress and betterment that these technologies bring by extending a hand of cooperation instead of wholly boycotting and opposing the 'Big change.'[23].

But all is not a smooth path without discourse; during recent deliberations of the Young OGEMID hot topic debate, various ethical issues protruding from AI were identified by linking those with the moral duties linked to us initially as lawyers to act and react in a particular way, we do so as we see the game of rules of law that is the to preserve the perception and reality of maintaining fairness in dispute resolution, say that at the moment, there is no need to have a separate set of ethical standards for AI in Arbitration. However, we are now unaware of how the algorithm arrives at a decision that it does. Still, its functions for Arbitration remain similar to honest life lawyer-like functions.[24]This is so because when we arrive by analogy, humans and technology can substitute for the functions performed by humans. One ethical dilemma that has been prominently addressed and raised is whether, as lawyers, we owe ethical obligations to our clients about resorting to these AI-based technologies because they are *faster, cheaper, and more reliable than humans*.[25] Moreover, despite the various possibilities of appointment of computers and programs as arbitrators, they still lack the human elements such as *empathy, emotions*, (Kluwer Arbitration Blog, 2017)*The ability to decide ex aqueo et bono, and the ability to explain a decision.*[26]. Automated arbitrators may not fully replace human arbitrators, but some of the activities,

such as logical assessment involving fact-finding the sociological imprint, can only be performed by humans.[27]In that way, it is a limitation which must be considered a partially transferable process. These arbitrators should possess characteristics such as *independence, impartiality, and capacity*.

Indeed, it has also been argued in ensuing and ongoing discourse that if the AI arbitrator award has to be on the same reasoned basis, then why is it so there are more excellent grounds to examine undisclosed motivations of the AI Arbitrator (i.e.., concerning relevant training, algorithm, dataset, and a question has also been raised as to is the need for the difference in transparency between AI and human arbitrators if the textual context of each award is strictly reasoned?

Moreover, according to a survey by Queen Mary in 2018 on international Arbitration, at least 47% of arbitrators resorted to using AI technologies in their practice.[28]. This is astonishing, given many sceptics' views about the need for resources and the inequitable distribution of technology globally. However, of the 47 %[29] of the participants in the study agreeing to resort to the use of AI-based applications, almost 32%[30] have rarely done so, while on the other hand, 42.5%[31] of the participants have admitted to resorting to AI-based technologies 'sometimes'; on the other hand, 19% have made use of AI-based technologies frequently, and only 6.5%[32] of the participants used it almost every time in their practice. Moreover, despite the nascent stage of these software's, and AI based applications such as: Ethereum, proponents are prompt to contend that it will flood in an era of speedy, universal, and cost saving access to justice, as has been argued elsewhere.[33]

With the augmentation in popularity of new innovation in capital, technical expertise and knowledge creation with respect to technology comes with its own unintended limitations, and keeping in spotlight, the rising transactions over Ethereum based blockchain, in light of potential limitations, and rising dissatisfaction with smart contracts, in light of rising, complex and challenging transactions , as will be discussed later in this article, the chosen medium of dispute resolution that will be adopted shall be alternate to traditional tribunal to resolve disputes. It would be so in light of fallacies associated in relation to the nature of the blockchain[34].

As noted in previous studies, there is not a single adequately evolved AI-based system (algorithm or machine learning system) that can make independent(Ongenae, 2021) legal decisions[35] at the time of writing this article. However, two coding systems in the test, briefly touched upon in the article, may give rise to the assumption of an AI-based autonomous decision mechanism in international Arbitration.

Discussing about how to best govern and regulate innovation in arbitrating in digital space, and amongst power of the computing algorithm, till now there are not yet precise and, specific arbitral rules designed by arbitration institutions apply to digital disputes today. However, there has been an exciting development to this effect; the Task Force of the Ministry of Justice of the UK has evolved Digital Dispute Resolution Rules in 2021 to be formulated inherent to the contractual agreements engaging digital property.[36]We are committing parties to a flexible and speedier resolution of disputes through expert determination and Arbitration. One prominent feature of this set of rules is that it enables parties to remain confidential except to the tribunal, to whom they must provide the details and evidence of their identity. Also, this set of rules covers a broader category of digital assets.[37]

Witnessing the trend of growth in blockchain technologies to understand their impact on their business, it has become essential for arbitration professionals to understand what implications it poses for the importance and physiognomies of Arbitration in the future.

Nevertheless, in many industries, Arbitration is still a dominating mechanism for resolving commercial disputes.[38].But the challenging question is if it would be a disruptive innovation, which is characteristic of '*creative destruction*, a term coined by Joseph Schumpeter- in which case, a generally accepted service or a product is offered by an entirely new set of players and entities[39]. On the other hand, it can be an utterly not a unique innovation, as has been suggested by Rana Sajjad Ahmad in her work.[40], stipulating the creation of a new market in which previous non-users or non-consumers of Arbitration become converts and users of Arbitration. In relation to this presumption, another point of deliberation has been given increasing importance, as to how does this disruption change how arbitration proceedings are carried out? If the answer resounds in a positive then- would it completely alter the functions of arbitrators, counsels, disputing parties, and arbitral institutions, or would it support the arbitration process regarding time efficiency and cost management?

As such, data-driven artificial learning industrializes learning, improves productivity, reduces costs (Barnett, 2018), and augments logistical services.[41]

The article is a conceptual analysis of existing information about the various uses emerging technologies, such as digital technologies and artificial intelligence, can pose for Arbitration, or if at all, replace the traditional forms in which Arbitration is carried out, and various limitations posed to the realization of such an ambitious dream. The focus is on blockchain technology, case management using AI technologies, and other sophisticated uses.

The article has been divided into sections dealing with the application of technologies in Arbitration and how Arbitration can be used to resolve technology disputes. It will also deal with jurisprudence to deal with the evolving complexity and challenges associated with international transactions related to emerging technologies such as artificial intelligence, cryptocurrencies, nonfungible tokens, technology and innovation, bitcoins, and digital assets. It will further examine jurisdictional and substantive issues associated with the same.

SYNOPSIS

Relationship between International Arbitration Spectrum and Blockchain Technological innovation

Blockchain technology can be described as a decentralised ledger[42] recording information or transactions in time-stamped blocks shared and corroborated by the blockchain's users. Users maintain This distributed ledger instead of a trusted third party[43]. It functions on cryptography and acts as a dynamic registry for exchanging digital assets and verifying digital information. The foundational feature of coding-based triggering of distributed mathematical equations, the solution of which further facilitates the recording of transactions and tracking assets[44].

In existing literature from an economic law perspective, many commentators positively construe technology as basic economic theory, "*technological progress shifts out production progress frontier, thus enhancing aggregate social welfare.*"[45]. In terms of this observation, investment and trade in goods and services imply that the dataset, manipulation and process of algorithm, and remote sensor technology would play an intermingling role. On a similar note, increased investment leads to enhancement in job opportunities, as well as augmented GDP, increased economic growth, and the development of infrastructure and transfer of important technology[46].

This symbiotic yet inconsistently defined relationship envisions a place with a frictionless flow of data[47], considering interoperative standards to tackle data localization[48]. Increasing requirements, such as digital taxes, are a few constraints technology aims to reduce.

Foregoing the various facets and intermingling role played by machine learning, computing power, and other forms of deliberative interaction with international arbitration, AI-based evolutionary technologies have potential prospective applications in support of the legal dispute process.[49], namely:

1. They can assist in analysing and even in the conclusion of contracts[50].
2. They can aid in arriving at strategic decisions based on data analytics (such as which arbitrator to appoint)[51],
3. They can also assist the council in analysing and drafting the submissions.[52], and,
4. They aid in processing large amounts of data in the electronics discovery process (Scherer, 2019).[53].

Arbitration based on smart contracts is based on a set of promises formulated in coding, to be digitally executed upon fulfilment of specific criteria and conditions in the arbitral award. It is one of the ways through which autonomous Arbitration can be achieved. The award stipulated must be digitally executable.[54] But it has its own shortcomings, as these contracts are linked to escrow accounts[55], thence, an arbitration clause can only be invoked for that stipulated amount, in comparison to the traditional form of Arbitration in which a settlement can be sought in the court for a higher amount or the assets of the disputant parties. However, this limitation can be cured by attaching digital assets such as nonfungible assets (NFTs)[56], which reflect ownership over digital assets (digital tokens that are recorded digitally and represent unique items)[57]. While there was a weak hope for utilising blockchain arbitration in the past, there has been a great expansion in scope and use of such suitable blockchain mechanisms, which can be designed as a go-to solution for the selected classes and the masses. Moreover, the usage of non-fungible tokens has given to rise in the propensity to risks as well as profits[58], which is inherently reflected in the theoretical foundations of such technologies, and such regulatory risks include, but are not limited to a) classic one about approaching innovative technologies and practices, as to the time of regulation, and which ensures that regulation should be available at the right time and should not be enacted too early, when the investors need to be protected, also about when investors need to structure their business, and should not be so early that sabotages innovation, and new industries and jobs[59]. Most of these dispute resolution-based applications allow users to enable a natural language processing model along with a coded algorithm. The clarity and comprehensiveness of any of these platforms vary, and some applications extend to a significant bandwidth to achieve traditional legal enforceability. For instance, OpenCourt[60] allows for a template for natural language processing to aid the Solidity-based coded agreements[61].Such application platform permit Ethereum users to fill in template with pseudo anonymous Ethereum addresses, ether users, and boilerplate arbitration clauses. This is an enabling factor in formulating legally compliant bills of exchange, which are managed and signed through blockchain[62]. It is important to note that despite the distinction and separation of identity of bill of sale from the smart contract, and existence of natural language , does not imply that code will exercise that function. Indeed, as a matter of factual importance, disputes concerning smart contracts arise because of divergence in intentions of the party's intention and code manifestations[63]. In a nutshell, these two components, pre-smart contract code and natural language, are essential to entering into and inducing a push to the agreement when choosing an on-chain resolution. However, this has to be taken forward by an organisation

with great caution, pre -coded agreements face a series of governance, and practical issues, and despite the nature of an agreement being automatic, does not lead to an implication of desirable results being attained[64].Oftentimes, variance in intentions of the parties and outcome, result in dissatisfaction of the parties result in them reaching for legal recourse[65].
In determining the exact relationship with the precise application of AI, necessary design and collection of data, and computing power, the enterprising effort should ensure that microeconomic and macroeconomic aspects of arbitral awards are considered interwoven and not in isolation, and this implies talking consistently about problems inherent in the applications, software so devised, which on many occasions we refuse to acknowledge or discuss[66]. Due to the lack of disputes about Digital assets and associated technology, the vagueness underlying such conceptual innovations and the relationship between international investment law and digital assets remains substantially undeciphered. As suggested by commentators and scholars elsewhere, the need for study arises to discuss how and when digital assets would fall under the coverage of protected assets under the umbrella of international investment law[67].

In light of the foregoing discussion of the relationship between the digital sector, emerging technologies, and Blockchain arbitration, it can be momentarily be inferred that it has advanced to meet the needs and requirements of disputes arising from smart contracts. Although disputes are less likely to emerge from simple buy-and-sell intelligent agreements[68], they may occur in more complex cases where misunderstandings arise. Similar to similar research, experimentation, and utilisation, various blockchain arbitration procedural-based software designs are currently in progress, namely **CodeLegit, Jur**, **Argon,[69]** and **Kleros**. **CodeLegit** has also drafted a set of Blockchain Arbitration Rules and predicted an appointing authority (this is unclear as to whether it would be an arbitration institution) – which, in turn, may appoint an arbitrator, who may be a jurist or blockchain technician. In this type of Arbitration, communication takes place in the form of an email; there might also be an oral hearing over video conference, should the arbitrator call for it, which is in substance like online Arbitration.[70]. On the other hand, Kleros is creating a quasi-judicial system with sub-court divisions, such as a transport division and then an air transport sub-division. This is followed by a rather complex process whereby jurors who volunteer at these court divisions are selected by random number generation. This system has created an appeal and bribe resistance system for the jurors. Another interesting development in smart contracting in Arbitration is litigation, which promotes document processing, translation, data extraction, and compiling. **Algorithmic predictive solutions[71]** such as **pre-dicta** can provide an early estimate of a dispute's success by analyzing various data points and historical results to ascertain the outcomes of current cases and its success is notably found to have been in determining the judge's decision to dismiss the ***Vanipenta v. Silicon Valley Financial Group[72]***class action.

But **natural language generative AI** is another variant of technology that uses the input parameters and promptly responds to produce a new piece of work and has, ever since its access to the public for free, become such an embraceable product that it has also evolved as a tool of changes, for Open AI's *ChatGPT* being cited by Judge Juan Manilla Padilla in Cartagena, Colombia, to disclose that he had utilised this technology to render his decision on a health insurance coverage claim.[73].

In light of the going augmented uses, and variants of AI tools and applications, question is up for deliberation, and which is yet to be answered comprehensively in academic literature, as to what these Advancements signify for the arbitration practitioners. Despite the claims of many fanatics of the tech dispute resolution mechanism, there are still significant

drawbacks and loopholes in the system that make it hard for it to replace the traditional arbitration mechanism; some of these problems that plague the seamless use of technology in Arbitration and vice-versa, have been discussed successively as follows:

Negative Effects of Technology and Datafication

Data control implies a clout of social, political, and economic power.[74]. Excessive reliance on emerging technologies can also cause 'social inequality.[75]', giving rise to social conflicts within and between countries, bridging the gap between haves and have-nots in the dispute resolution process.[76]. AI-based Arbitration cannot effectively replace interface-based factual or legal judgment analysis for the data limitations that the algorithm or the machine learning program encounters, and they are: require a massive quantity of data, consistent data patterns, it works based on data from the past, and AI is not a cure for the data.[77].

Moreover, simple reliance on the assumption of efficacy and convenience on the utilisation of such tools, poses challenges of justifiability, and would be complete nonsensical for users of these applications, lawmakers, and programmers for doing so. After crossing beyond the point of superficial superiority, number of problematic issues arise therein application of AI technologies, and in furtherance of which one important question has to be answered in light of various limitations discussed. It has been deciphered by different scholars: a) Is blockchain technology faced with inherent problems concerning its technological aspects, that further inhibit adjudication[78]. In light of this challenging risk posing the facet of important application of AI, additionally, excessive reliance on or proliferation of computing datafication and exploitation of algorithms may lead to the following criticisms:

1. *Firstly*, it would pertain to the loss of party autonomy concerning the appointment of arbitrators.[79].
2. *Secondly*, it would lead to the loss of partial autonomy due to the self-executing nature of smart contracting.
3. *Thirdly*, Lack of confidentiality is another primary concern. Blockchain operates as a permissionless system in which all parties' information, including claims, evidence, and arguments, is placed in a publicly viewable distributed ledger. A point of deliberation will then arise if the parties want to go for a system that sacrifices confidentiality safeguards.

Additionally, to the issues mentioned above arising out of complexity in the application of AI Technologies, scholars such as Kevin Ongenale[80], have also put forth the following challenges that result in uncertainty of legal and regulatory framework governing AI-based applications in arbitrations, and they are:

Problem in Training AI Software: It is tough to find cases in international Arbitration due to a lack of consistency on several issues, and there is a need for more clarity due to confidentiality requirements, making it incredibly challenging to feed large amounts of data to the AI system. This, in turn, will lead to imprecise outcomes as to the decisions of these machine learning algorithms. Although it is suggested that it is better to increase the scoping of the dataset, cases from the court litigation should be included; this, however, is not without problems, as it does not solve the problem of solving 'arbitration-specific issues' and covering transnational Arbitration in its umbrella.[81].

The major problem is associated with the inability of the automated arbitrating system to analyse legal rules and principles, and they can only analyse the dataset based on the input statistical models (Cheng, 2018), and they can infer erroneous results[82]. Thus, even after training the AI software, the human arbitrator or judge's human element must meet the legal

requirement of a just and fair outcome. Otherwise, prejudiced or flawed results would result from inadequate or inaccurate data.

Problem in the Type of Data Needed: Training AI in Arbitration requires sufficient, precise, available data for inferring rules and predicting future data. The output does not reflect reality when relevant data is not fed into the algorithm. As such, an outcome would be misleading. This flaw has been reflected in publication bias in enforcing arbitral awards.[83]This flaw of this system is further exacerbated by the heavy reliance on statistical methods by the AI Algorithms to detect trends and patterns from data, and further augmented by the prejudice of AI arbitrators.

Another problem would arise with respect to the AI arbitrator's ability to identify novel policy issues or legal or factual issues. This is because the predictions that the AI arbitrator would use would be the older dataset, and such data might become redundant due to a change in the council's clever argumentation style, for example, a change in policy or societal changes. It would pose a problem in identifying a common link with the existing set of cases and further exacerbate inconsistency in arbitral cases.[84].

Considering different types of data is a critical issue that needs to be considered holistically, along with the problem of 'hallucination', which refers to the problem of AI considering something without a factual basis. As such, "it is not considered as a legal issue but a factual issue, as one has to be confident of the output that will be produced, and any output by definition must be checked by someone who has been paid a lot of money to check it", as said by Jan Wildhirth in Berlin, who is the Managing Director (Fisher, 2021), of Fieldfisher X[85].

The false presumption of facts by AI was highlighted in the case of Brian Hood, whereby a false assertion was made for bribery against him (Oxford Analytica, 2023). He instructed his lawyers to take a first-of-its-kind defamation action against an AI-based technology.[86].

Data Breaches and Problems Originating from Cybersecurity Attacks: The legal sector is mainly affected by the side effects of AI technology concerning possible data breaches. Data privacy is a concern in that it might pose a significant hurdle, as the technology solutions for various cloud server locations would imply that it is a security risk to share client confidential information over the server, which might be in contravention of regulatory compliance, and data privacy laws and policies. Moreover, as Gesser has stated, '*as huge data sets that are required to train AI can be over-date in terms of new laws and precedents over time, so it is an impossible task for AI to predict solutions for new and novel situations that might turn out outdated information for them.*[87]'

It is also very challenging for the AI systems used in arbitration proceedings to comply with the legal framework associated with data privacy laws, rules, and guidelines, particularly in the case of EU'S GDPR[88], which is quite stringent, and requires explicit consent in relation to accessing, processing, and storing sensitive personal information of an individual. The AI systems designed, implemented, and used, then need to better comply with these data protection guidelines and may also rely on complex data usage patterns of which individuals may not be aware of or find clamorous to comprehend, to exempted from the infringing the data protection legal framework[89].

Jurisdictional and Issues Associated with Conflict of Laws and Substantive Laws Applicable to Issues Underlying the Contract and Those Outside the Scope of the Digital Contract: As a recent article observed, it is justifiable to observe that most substantive and procedural developments concerning digital disputes are incurred or take place in context of litigation instead of Arbitration, or the chosen mode of dispute

settlement is the former. However, there have been instances where the two modes of dispute resolution have collided or overlapped, and most importantly in case of (Peter, 2024), when the Consumer Protection Legislation has been invoked in an attempt to exclude an option for Arbitration.[90]. In England & Wales, such provisions conflict, which in order, have an adverse impact on the arbitration agreement's enforceability. The following cases demonstrate the varying and inconsistent jurisprudence to understanding the jurisdiction and competence of judicial mode of settlement and its comparison with Arbitration:

- *Soleymani v. Nifty Gateway LLC on October 6, 2022*[91]

  This is another case demonstrating the problems associated with jurisdictional limitations of automated decision making in emerging technologies in arbitration proceedings and it is when- the Commercial Court in England and Wales stayed the proceedings. In this case, it was declared that it had no jurisdiction over a claim raised by a claimant for a declaration that he was not bound by an arbitration clause included in a contract for purchase and sale of nonfungible tokens through the medium of the online auction. In upholding the court's decision in the first instance, it provided the reasoning that it did not have the competencies to adjudicate the validity of the arbitration agreement. However, concerning the applicability of governing law and the Gambling Act[92], it held that the domestic courts were better placed to adjudicate on the question of fairness and justice in consumer protection law in compare to than the foreign arbitrators.

- *Chechetkin v. Payward Ltd*[93]

  Similarly, in this case, the High Court ascertained that it retained jurisdiction over a dispute concerning the claimant's claim of trading loss on a cryptocurrency exchange even when the relevant terms of service contained a) a San Francisco arbitration agreement, b) and even when the arbitral tribunal had been formed and had issued an award. The court, at a later stage, affirmed that the award could not be enforced on the grounds of Lack of compliance with public policy concerns underlying the consumer protection legislation.

  As reflected from the analysis and examination of the foregoing cases, Lack of compliance with public policy concerns is a very controversial topical issue. An increased understanding of local norms, usages, and public policy concerns could deal with it, as terms and conditions could then be reformulated accordingly.[94].

  Ethical Concerns Affecting the Decision-Making of Arbitrators: There is an increased perception of the importance to be vested in ethics in international arbitration, more so in light of the widening of the pool of arbitrators. To quote this rising controversial element of arbitral appointment and decision-making, a survey conducted in 2011 stipulates 68 % of the respondents commented on having witnessed ethical misconduct, including the deployment of aggressive guerrilla tactics[95]. Also, in the case of utilisation of good faith, arbitrators face challenges associated with the mounting pressure of uncertainty associated with ethical norms, especially considering differing cultural perceptions and presumptions across different jurisdictions[96]. In conjunction with the rising augmentation, to retain and contain the legitimacy of international arbitration, it is essential to augment ethics in the profession[97], though there are no clear-cut guidelines regarding AI's application.

  The decision-making process for a human arbitrator is a "black box" unless and until the human arbitrator reveals his/her reasoning in a reasoned order or award. The same situation exists if an AI arbitrator issues a reasoned order or award. Human arbitrators develop reasoning based on several internal factors (community, culture, background, education, religious and ethical beliefs, etc.)[98]. Thus, a French arbitrator may have grown up with different training than a Singaporean arbitrator. In general, it is not a requirement to

induce transparency regarding those bases, except for minimal information in arbitrator conflicts, disclosures, and CVs.

AI arbitrators, too, would develop their reasoning based on internal factors (algorithms, databases, training, etc.).

Some think more transparency is required for AI arbitrators due to an unexplained distinction between humans and machines and, importantly, fear of the unknown. But "training", "database", and "background" biases are common to both types of arbitrators. As I said above, disclosure of human arbitrator biases is minimal, yet our legal and political communities consider that sufficient to purpose[99].

Several laws, regulations, rules[100], guidelines[101] and codes regulate human arbitrator ethics and transparency. Before we start regulating AI arbitrator's *ab initio*, we should ask ourselves whether the existing human arbitrator ethics regulatory measures are sufficient when applied to AI arbitrators and, if insufficient, exactly when and why.

In addition to arbitrator ethics, the same need for comparative analysis exists in considering whether AI roles will, for example, lead to discrimination against less advantaged participants in Arbitration. That question already exists for juridical forums generally, both court and Arbitration. To this knowledge, no one argues that Small Claims Courts disadvantage minor claimants. Instead, we think of Small Claims Courts as providing access to civil justice for claims that cannot endure the expenses of ordinary courts. Shouldn't we be asking similar questions about using AI for small arbitration claims? Needless to say that it is, whenever we decide to automate the arbitration proceedings, it is always essential to keep in mind a resounding presumption held by Ronald Dworkin who explicitly propagates the same by labelling his perfect judge 'Hercules' 2 and infusing on him with skill at par and beyond humane level, acumen, learning and patience. The famous US Justice Oliver Wendell Holmes, meanwhile, described the ideal judge as a 'combination of Justinian, Jesus Christ, and John Marshall'[102].

After engaging in such comparisons, we can conclude whether applying existing human ethics requirements is sufficient. However, regulating AI arbitrator ethics before we undertake that comparative analysis seems deeply neglectful.

SOLUTIONS FOR ENSUING DEBATE AND THEIR PRACTICAL IMPLICATIONS

However, correcting or making some adjustments to the procedural elements of international arbitration or how it works is not impossible. A few things may be accommodated to bring in mitigation to reflect disruption, reconfiguration, and changes brought in by new technologies, some of such reforms suggested or to be incorporated in the contracts, agreements or as a matter of procedural requirement to ensure the propriety of proceedings and in consonance with the best interest of the parties, have been deciphered or discussed successively below:

To Ensure Confidentiality

In light of the preceding discussion of issues, to deal with the problem of transparency, it is suggested that blockchain arbitration be redesigned to look like a traditional form of arbitration proceedings as they are perceived or enlivened. One suggestion that ensures confidentiality that the scholars have advanced is to redesign it to run as a permission system. [103]To this effect, the keys and the hash codes should lie in the hands of the parties to the dispute, making it more confidential in terms of access to information and distribution of information across the ledgers.

Restoring Party Autonomy

Another recommendation is to reduce scepticism amongst the parties to blockchain arbitration by increasing party autonomy over the selection of arbitrators and resolving disputes in a friendly manner (Dylag, 2023).[104].

If this is not possible, then the arbitrators and practitioners need to consider whether it is acceptable to bargain advantages such as confidentiality, party autonomy, and amicable dispute resolution in favour of advantages that blockchain arbitration has to offer, such as automatic and smooth enforcement of the arbitral award. [105].

Solving the Disputes Arising From the Use of the Internet and Its Many Advances

The development and implementation of various forms of technologies that we have discussed in the preceding paragraphs have also gone on to create new kinds of conflicts, with varying complexities and their ever-changing nature. However, to deal with these challenges, solutions are often devised by and for technical experts with the necessary knowledge, resources, and time. In response, the legislation governing the technologies has seen quick and large-scale growth, mostly due to international efforts for harmonisation. For all these explanations, it is even more evident that the dispute resolution system should be able to adjust to the changes and must be aware of the international principles being considered and consolidated.

It is also crucial that these differing technologies have also given a significant rise in international commercial transactions between private parties, and it is for these reasons that it is impertinent that dispute resolution systems be in a cordial understanding of private international law and should be able in a position to apply foreign law relevantly. At most, Arbitration is seen to meet these challenges, as the arbitrators are appointed by the parties and are given the necessary resources and procedures to dispense the cases. In that sense, the historical experience of international commercial Arbitration is suitable for overpowering the challenges existing in the body of conflicts of laws and regulations and addressing issues surfacing from international electronic commerce.[106].

It is also evident from various instances of legal systems in countries such as *France*[107], *Germany*[108], *Switzerland*[109], *Spain*[110], *Portugal*[111], *Netherlands*[112], *and Egypt*[113], that international law, national law, and commercial Arbitration practice provide arbitrators with greater leeway in ascertaining the law applicable to a specific legal relationship, thereby permitting them to deviate from traditional rules of conflicts of laws, if suitable. This flexibility gives rise to the Possibility for the arbitrators to directly apply the principles of electronic commercial law as laid out, among other things, in the Model Law on Electronic Commerce. This lex mentioned *above Informatica.*[114], may also be scoped within the wider ambit of international electronic commercial relationships as an inherent part and parcel of *lex mercatoria*[115].

Dispute settlement and the society forged by the advancement of the Internet Services

Because of the international, independent, and decentralized nature, being delinked from any geographical location will double the number of international disputes ascending and the requirement to apply the rules of international private law and enforcement challenges. As the Internet enables and assists in contracting remotely and in real-time, obstacles concerning the validity and evidentiary weight of the contracts and documents are in electronic format. More so, as it is a network of various forms of information, it will

augment the number of disputes concerning intellectual property and unfair competition. As had been predicted a few years ago, with the ease of access to the Internet, new types of conflicts, such as B2B[116], B2C[117], and P2P[118]Legal relationships.

An alternative way of resolving these disputes could be an appropriate answer to the problem. Such an idea has been rightfully conceived under the following international initiatives and/or could be based on these international principles based on private law.
Some of these initiatives and underlying international principles are as follows:

Article 17 of the Directive 2000/31/EC[119], also refer to paragraph 51: It provided for out-of-court settlement, and which encouraged parties in information society services, particularly involving consumers, to use alternative dispute settlement. This is about rising trends in electronic commerce since the early 2000s; this provision goes on to state that in case of a dispute between the internet service provider and the recipient of the service, their legislation should not obstruct resort to out-of-court schemes that are at disposal for dispute settlement under national laws, inclusive of appropriate electronic means. At the same time, it encourages the member state to promote out-of-court settlement schemes to resolve disputes, in particular consumer disputes, in such a way that ensures enough procedural guarantees for the parties concerned. The members are also induced to encourage the bodies responsible for out-of-court settlements to inform the commission of any 'significant decision' they take regarding disputes arising from information service providers and to communicate any information on customs, usages, and practices relating to electronic commerce.

Of key significance is paragraph 51 of directive 81, which requires that any legislation likely to obstruct the use of out-of-court settlement mechanisms through electronic sources should be amended.

EU Regulation 524/2013: In pursuance of its commitment under Article 26 (2) TFEU[120], and following its communication dated 13th April 2011, marked electronic e-commerce as one of the Twelvers to boost growth and induce confidence in the internal market and identified the need for legislation regulating that sparsely governed area of policy and trade.

This legislation provides a framework for establishing an EU ODR platform, and a date for the same has been stated: 9 January 2016[121]. Accordance with Article 20 (2) of Directive 2013/11/ EU[122], all the units are to be registered with the ODR platform, it shall permit for entire coverage of online out- of -court dispute settlement for disputes arising from online sales, and service contracts.

It also stipulates that a link to the platform on the vendor's website (e-shop) based in the European Union would allow consumers in the EU to submit their grievances electronically to an ADR form 81. Concerning data protection and regulation[123], this law goes within the threshold established in the principle of proportionality under Article 5 TEU as it provides an obligation for an online marketplace situated to provide for ODR, subject to Article 13 Directive 2013/ 11/ EU , in wherein there is another obligation on the Online medium to provide for an awareness to the consumers as to their right to various ADR mechanism by which they are covered and if the entity resorts to using such a mechanism to resolve the claim with the consumer[124]. It is not more than needed to attain the objectives established therein. This regulation aims to enable the Union to undertake such measures, in accordance with the principle of subsidiarity , with regards having to a range of impacts and effects, and that is in case of a situation if EU members fail to undertake steps or take inadequate steps to establish ODR mechanism on standard ground rules and framework[125]. They have an advisory and examination mechanism for implementing rules of technical electronic complaint form, and for cooperation for implementing cooperative mechanism

between national focal points, and advisory points at EU level to share information about complaints entertained, and which require attention of the EU Commission.

European Extra-Judicial Network for Conflict Resolution: This is a business-to business legal relationship, which has a dispute settlement mechanism based on paragraph 51 of Article 17 of Directive 2000/31/EC.[126]. This type of mechanism is backed up and sponsored by the European Directorate General for Health and Consumer Protection[127]. It aims to integrate European out-of-court dispute resolution agencies to facilitate cross-border claims filing. In such a manner, consumers could file a case against an institution based out of another country before the consumer agency is located in their country of domicile. The work of EEJ[128] Then, the claims are processed and transmitted to the appropriate agency in the domiciled state of the institution.

Online Confidence: It was an initiative[129] between 2001-2003, as sponsored by the European Directorate General for the Information Society and *Euro chambres*[130] It has been perceived as an indication of increasing consumer confidence in alternative dispute resolution systems. It establishes a mandatory system for resolving disputes between businessmen and consumers who level claims based on commercial transactions taking place on the Internet. Institutions that comply with certain threshold requirements display can a quality seal or a 'Trust Mark. '[131]' as a guarantee to consumers depending on the adoption of codes of conduct and on out-of-court settlement mechanisms for conflict resolution. Moreover, some private organizations have also resorted to it.[132].

UNCITRAL and other rules of procedures of arbitral institutions of international and regional eminence: In response to an increasing demand for harmonization of national law governing electronic commerce, initiatives such as the UNCITRAL Model Law on Electronic Commerce[133] The UNCITRAL Model Law on Electronic Signatures of December 12 2001, the latest being the United Nations Convention on the Use of Electronic Communications in International Contracts, is worth noting.[134]The latest legislation governing Blockchain Arbitration is the UNCITRAL Convention on Electronic Communications in International Contracts 2007. 2007 Convention provides for electronic records and electronic transactions and has provided for elucidation on-chain arbitration[135]. UNCLITRAL Article 19 (1)[136] and (2)[137] To be read in conjunction, stipulate that the parties to an arbitration are free to choose their choice of procedure to be utilized by the arbitral tribunal, failing which, the arbitral tribunal may adopt such rules that it may deem as fit to rule on the grounds of admissibility, relevance, materiality, and weight of any evidence. In addition to this, a greater leeway of inference of authority to the arbitrators to decide from facts can be construed from Article 19.1[138] and 2[139] Singapore Rules on International Arbitration are a reference point for promoting efficient, fair, economical, and expeditious dispute resolution after consultation with the parties. These provisions also provide that the tribunal shall ascertain the relevance, admissibility, and materiality of the evidence presented before it without having to make a recourse to apply the applicable law to make such a determination.[140].

As is evidenced by the various rules underlying the conduct of various arbitral institutions, there is no strict limitation as to the obtaining of factual evidence and definition of a document; it can be inferred that utilization and expansion of technologies in the legal arena should not be limited by the idea that the arbitral institutions will limit them.[141].

ICANN- Uniform Domain Name Resolution Policy: ICANN[142] has also laid down applicable rules and a dispute resolution system for generic internet domain names[143] . The system was designed by the WIP0 in 1999- as a response to cybersquatting – which is registering domain names of widely acknowledged trademarks, hyping it up, and selling the

same to the original trademark owners for ransom. These practices first gained momentum in the 1990s. Often, these practices are in infringement of existing intellectual property rights. A few such cases were resolved via courts, which further held that domain names are distinctive signs that can infringe trademarks and result in an action against unfair competition. However, being sceptical of the cost, duration, and uncertainty involved in the court proceedings, many trademark owners preferred to resort to settlement, which further advanced additional 'cybersquatting.' As a retort to this, WIPO, upon request by ICANN, devised a system called the URDP[144], which the system, in other words, is organized to resolve disputes between the domain owners and third parties with legitimate rights over names that are identical or confusingly like domain names. It resolved disputes for general domain names such as .com, .net. and .org[145]The URDP entailed a provision mandating that the parties to a domain name contract provide for a clause whereby any claim raised by a third party must be submitted by the domain owner to the mandatory 'administrative procedure'. In this procedure, a panel of one or three members decides the dispute based on the URDP criteria.[146] . Few opine that URDP has crossed the boundaries of expectations through the speedy disposal of disputes in a cost-effective manner[147].However, URDP, along with its' attendant rules, has its limitations, as it does not make a sufficient effort to tackle Reverse Domain Name hijacking – an act whereby the legitimate trademark owner tries to hijack the genuine domain name by filing frivolous DNH claims[148], and it (Andrew, 2012)does not also lay out proper remedies for the domain name owners genuinely responding to frivolous claims[149].One solution that has been suggested is that a collective effort be made on behalf of the RDNH,[150] in order for findings to be made in their favour, yet it is not a concrete solution[151]Exploration of the entirety of which is beyond the scope of this article. It is not Arbitration *per se*; strictly speaking, it resembles more evaluative mediation and can also be called to as non-binding Arbitration. However, the paradoxical difference between the two is that mediation is not binding in any way, while URDP is binding as ICANN owns a monopoly over the domain name system, clearly maintaining the sanctioning mechanism in place.

Self-regulation: It had been foretold or predicted in the 2000s that self-regulation would emphasize an important role in Internet services, as evidenced by the effort to include a code of conduct in Article 16 of Directive 2000/31/EC.[152], and Article 17 of the Directive[153] underlines the resort to alternative dispute mechanisms in general and Arbitration as an ADR, in particular, for conflicts arising from the usage of Internet services.

Principles and provisions of the New York Convention: Digital awards often face challenges of recognition and enforcement if a state has not incorporated model law on electronic commerce in their jurisdiction. The elements that pose a challenge to a fully electronic arbitration range from a) the electronic arbitration agreement, b) the place of Arbitration, c) electronic means for conducting arbitral proceedings, and d) the rendering of arbitral awards and its communication to the parties to the dispute.

The problem stems from the provision of Article IV (I) of the New York Convention.[154], which necessitates filing the duly authenticated award in its original form or a 'certified copy' thereof. These principles are laid down in Article 8 of the Model Law on Electronic Commerce.[155].

i. *Principle of equivalent functionality:* A more nuanced approach would involve teleological interpretation under Article II of the New York Convention[156] which involves taking into consideration telegram to include telex, fax, and other means of electronic communications, and this principle has been utilized in various court judgments[157], and is based on the factual presumption that the mere exchange of emails filed by the parties, which admitted the content

of contractual documents was not signed, could not be construed as an 'original or a certified copy' of a document of an agreement not entered into writing, or as a result of the exchange of telegrams or letters.

Moreover, various scholars and practitioners have propounded to provide for validity in express terms for the agreements enforced through electronic means.[158]. Given such difficulties that an amendment to the New York Convention would entail, it has been suggested that: a) the Possibility of drafting an instrument that in express terms includes the validity of agreements entered electronically, and b) the probability of including a reference to the New York Convention in the draft convention on the use of electronic communications in international commercial contracts which was in consideration of the UN WGIV (electronic commerce)[159].

ii. *More beneficial provision:* A situation may also arise when states relying on Model Law on Arbitration[160]may be encountered with the definition contained in the New York Convention[161]Therefore, a party that relies upon its domestic law and uses electronic resources to enter into arbitration agreements may be faced with the unpleasant challenge of the agreement not being recognized in a foreign state due to provisions in the New York Convention.

By Article VII of the New York Convention[162] Maybe used to resolve the problems contained in the New York Convention, a judge may be requested to enforce an arbitral award whose arbitration clause is in electronic form; such judges may, however, face challenges under the definition of an 'arbitration agreement' given under their national law at contrast to the one falling under New York Convention. Therefore, the New York Convention establishes a minimum level of safeguard. Any interested party under Article VII of the New York Convention shall not be deprived of their right to seek enforcement of their arbitral awards in the extent and manner so deemed allowed by the law. Such an accommodative provision is also referred to as the 'most beneficial provision', which dissolves the conflict between the New York Convention and the national law in which the recognition of the award is sought in favour of the provisions which are deemed most beneficial.[163].

As such as either a teleological interpretation of Article II of the New York Convention[164]Or a most beneficial provision, it is possible to argue for recognition and validity of arbitration agreements entered by electronic resources. On the other hand, the persistent trend in the arbitration award results in a contradictory result of increasing denial of recognition of arbitration awards[165].

The other contemporary areas of Arbitration that have been debated concern the place of Arbitration use of electronic means in conducting arbitral proceedings- it has advantages such as increasing efficiency, reducing costs for proceedings, electronic transmission of communications and notifications, use of virtual arbitral courtrooms, taking of evidence by electronic means, deliberations of arbitrators, and electronic arbitration awards and its notification to the parties. All these uses have their own limitations in terms of access, resources, confidentiality, and legal compliance with anti-corruption and transparency guidelines.

IBA Guidelines on Taking Evidence in International Arbitration and ABR 40 Technology resources for arbitration practitioners: Since the first update of the guidelines on taking evidence in international Arbitration in 1999, they have been updated twice—in 2010 and 2020—by a task force established by the IBA Guidelines and Rules Subcommittee; they tend to be applied either directly or indirectly or used as guidance by over 160 arbitral institutions. The recent changes have gone on to cover clarifications and amendments

concerning evolving practices and developments, and the most recent changes reflect the concern concerning cybersecurity.[166], and data protection. The latest guidelines in 2020 have also removed the requirement to translate the documents, and now only those documents which are submitted in a language other than which is necessitated for the proceedings can be translated as given under Article 3.5 of the IBA Rules 2020 read in conjunction with Article 3.12 (d) and (e) of the IBA Rules 2020[167].

They have also tried to balance civil and typical law duties. On the other hand, we see variations in practices regarding submitting translated documents along with the originals. However, concerning larger international cases, this requirement has been altered in practice by users with far more experience to reflect their own best understanding.

Other main features that characterise the latest round of amendments deal with contemporary issues of Arbitration, such as additional or revised sets of expert panel reports.[129]or reports and witness statements[168]. These amendments were reined to promote 'procedural efficiency' so that the other party would not be shocked when presented with new evidence later in the arbitration procedure without substantiated grounds to derail the procedural timetable. Another feature of the recent amendment includes the promotion of remote hearing by means of video conference teleconference- so as to encourage all the parties participating in proceedings, especially in evidentiary proceedings.[169].Nevertheless, it is still being determined whether the tribunal has the authority to order a remote hearing, especially if it conflicts with *lex arbitri* (applicable local law)[170], or which could present a challenge in enforcement in a national jurisdiction. Finally, the latest round of developments considers the diversity of decisions by permitting an of 'may' to allow the tribunals to exclude evidence that may be obtained illegally either on its motion or by the party, and this is more so induced by instances of evidence obtained via cybersecurity and data breaches.[171]The latest round of developments reflects changes stimulated by conditions created by national lockdowns and travel restrictions in response to the COVID-19 Pandemic[172].

Apart from this, IBA has comprised the ARB 40 Guide[173]For arbitration practitioners, a list of software tools to enhance their document review process and mentions predictive coding. It stipulates the conditions in which predictive coding may be utilized, including disclosure and permission to be sought from other parties and tribunals.

Silicon Valley, Arbitration & Mediation Centre is preparing to publish new regulations concerning AI in international Arbitration, including ChatGPT: In its various submissions, the Silicon Valley Arbitration & Mediation Centre, in the light of the urgency of limitations of AI, such as citation of non-existent precedents and the requirement of human verification certificates for output produced by Open AI-based software such as *ChatGPT,* pushed forward the initiative to formulate guidelines for the usage of dispute resolution in the technology sector.[174]

The main innovation this policy formulation brings is that it defines AI in a broader term but not so much to include every computer-assisted program or tool, and this definition emphasizes modern technologies that tend to be more autonomous, multifunctional, complex, and more probabilistic than traditional tools focused on automation attenuated on rule-based deterministic logic.[175]. These guidelines cover not just generative AI but also all types of modern AI tools, inclusive discriminative or evaluative AI; the instances of such tools could be used to produce recommendations, conclusions or generate text or output which produces human-created content (text, images, or visual audio)[176]With respect to the normative content of these guidelines, such a composition is not mandatory and is not meant to override existing domestic laws, regulations, international treaties, professional ethics, or rules of professional conduct; it is meant to supplement these as international standards.[177].

These guidelines were published in August 2023 for public consultation, and concerning the same, it has entered into an arrangement with the Stockholm Chambers of Commerce 134; it aims to ensure collaboration between alternative dispute resolution institutions, educational institutions, and technology stakeholders. It is divided into three chapters covering areas ranging from defining what constitutes AI Technology applicable to Arbitration.[178]. It has recommended, amongst many suggestions, that a model clause that provides for the application of these set of guidelines to both domestic and international arbitration proceedings, and it can be adopted both before and during the commencement of arbitral proceedings, at the instance of the parties, and by the reference of arbitral tribunal members.

Some of the solutions that they identify to deal with various functionalities, risks and limitations associated with the preparation of and use of AI in arbitration proceedings are as follows:

Parties to an arbitration proceeding should try to understand the various limitations, risks, and functionalities of the AI technologies they deploy in their arbitration proceedings: The various associated risks and biases related to, for example, generative AI include their inability to identify various logics and sources of information for training the data, for closing the gap in information by identifying incorrect data or mix-up information, prejudice in biased training data set, to name a few risks associated with such technologies to produce a given output. The participants are also encouraged to get an overview of the compliance of AI technologies with various privacy security, confidentiality, and data security obligations[179]. To reduce the problems associated with training data on which the functional aspect of the AI relies, black box, hallucination, quality of data representativeness, and augmentation of biases have been attenuated in the guidelines range. Participants in a dispute have been encouraged to assess the output of these AI tools through their best judgment efforts and make efforts to identify the bias underlying the output of AI tools. Accordingly, they should try to mitigate them and use AI tools that control bias.[180].

Parties to commit to ensuring confidentiality, integrity, and due regard for the process of the arbitration process: In the Commentary to Guideline 2, the arbitrators are advised to use AI tools that ensure confidentiality of the Arbitration, considering general levels of privacy, confidentiality, and secrecy of client-related data and the proceedings. To identify various risks associated with disclosure of proceedings to the public, the commentary suggests that the parties, arbitrators, or experts adopt and use privacy and business-oriented AI tools, and suppliers could supply tools with more varying features offering additional layers of security, confidentiality, and privacy.[181].

Moreover, in Guideline 3, the arbitrators are not obliged to disclose information, and arbitrators and representatives of the parties are advised to disclose information based on two optional recommendations: A[182] and B[183]Both of these have a common dominator of compliance with materiality requirements: that the output of the AI tool-based process acts as a source of preliminary information or that the AI-based tool or the output significantly impacts the arbitral process or its outcome. The tribunal's orders directing such disclosure further warrant a precautious approach as it might violate work-product confidentiality and strategies that the counsel withhold material, which requires such information and product. A cautious approach must be taken concerning due process, transparency, privilege and confidentiality.

Ensuring due diligence and a competent approach to vetting the AI product: Merely relying on the generative AI tools-based products, such as the summarisation of case laws and its careful inclusion in written arguments and oral pleadings, drafting witness statements,

and expert statements, would cast doubt as to its accuracy and efficiency of reliability. According to the Commentary of Guidelines 4[184], 5[185], and 6[186], arbitrators and experts use their independent and critical analytical and judgment skills to correct factual, legal, and evidential arguments quoted in this AI output, and this is also an essential element of the guideline of not delegating personal mandate to the AI generated tool for making decisions, and at most, the arbitrators can employ such tools to assist them in arriving at decisions[187]. It emphasizes the importance of the disclosure by Arbitrators of any reliance made on AI-based tools outside of those provided for in the arbitration agreement or of whose notice the other party is aware in order to evolve their understanding of the factual and legal matrix of the case[188]. Adequate disclosure prior to such a usage should be made to maintain the proceedings' integrity. This critical step ensures that each party gets a right to be heard and transparent.

RECENT REFORM PROPOSALS DISCUSSED AT UN WG II IN NEW YORK IN FEBRUARY 2024

In pursuance of commitments outlined and objectives formulated by UN WG II, in response to a task entrusted to it by UNCITRAL in 2022, deliberation focused on working on common elements to bring an efficient process of technology dispute resolution and adjudication[189], with a focus on developing the lesser complex legal framework, to work on a shorter timeframe, providing the third party with relevant expertise, resulting outcome enforceable across borders not necessarily binding awards, the confidentiality of proceedings, appointment of experts or neutrals[190], and such evolutionary aspects should be imbibed in instruments in the form of legislative, non-legislative, model provisions or clauses to expedite the speed of the proceedings further. The above reformatory work was agreed to be based on UNCITRAL Expedited Arbitration Rules[191]. The purpose of such an initiative was to induce flexibility in tailoring the rules according to particular circumstances and needs of the disputant parties.

Some of the Reforms were suggested in February by UNCITRAL. They were later critiqued by observers and interested stakeholders such as the Georgetown Centre for International Arbitration and the Miami International Arbitration Centre (MIAMI)[192], are as follows:

- The Possibility of having unreasoned arbitral awards and adjudicatory awards has been suggested to increase efficiency, time, and cost and ensure a speedy process. However, this leaves a scope of need for a greater understanding of the awards for the parties while challenging them and implementing them.
- Possibility of ensuring parallel proceeding to ensure that regardless of submissions of statements of parties and evidence, parties can resort to either of processes, but which suffers from the duplicity of settlement of claim, controversy or dispute or increased cost associated with multiple adjudicatory process or arbitral process initiated with a similar set of facts or laws engaging ordinary subject matter of the dispute. It also leads to problems associated with res judicata, having varying outcomes and determinations.
- There is a possibility of entering into confidentiality agreements with interested stakeholders, such as third-party funders, to contact witnesses and other parties—but such a possibility faces a problem of enforcement and remedies.

- The model clause focusing on adjudicatory, although more non-mandatory, thereby stipulating and providing for a choice between 'arbitration' and 'adjudication', still should be more precise in delineating its scope of function and focus on disputes such as payment and technical disputes. On the other hand, such an approach can render other disputes requiring the application of more expertise in settlement excluded from its application if the clause is so precise.

- To reduce the caseload on adjudicators and arbitral tribunals, solution recommendations and mediation before resorting to legal adjudication are necessary to reduce the complexities associated with them. On the other hand, the appointment of neutral experts and resolution boards of experts can play a role in avoiding having to resort to the courts.

- A careful examination of principles of fairness and justice should be required when incorporating rules, procedures, and guidelines in adjudication to minimize inflexibility regarding reimbursement and the conduct of adjudicators.[193].

- Although some of these recommendations and reforms seem very interesting, it is yet to see what folds out in the future and is to test the waters of the arbitral practitioner's community.

CONCLUSION

However, not all is doomed because of the interrelated relationship between technology and Arbitration. Technology's use of legal services to smoothen processes leaves an increasing number of traditional problems the legal industry faces that must be addressed. These problems range from Lack of confidentiality to data breaches to increasing costs for participants who cannot afford technology resources, to name a few.

Given the above developments, a cautious approach to embracing artificial intelligence is in full swing. AI-related generative technologies or natural processing technologies, such as OPEN AI, cannot be banned, at least soon. Still, their services have to be fully optimised by regulatory requirements with different jurisdictions, contain its ability to distort a fair level playing field in the arbitration field, and compare with traditional forms of conducting arbitration proceedings is necessary for the continual development of an area which is regarded as a cost-saving option to court-based dispute resolution.

Many advantages, such as enhancing data processing capacity, transmission, and storage facilities that the various emerging technologies such as Artificial intelligence have to offer, as a result of an increase in computing power, augmented data sets, and machine learning capabilities, are attractive forces for many arbitrators, counsels representing the parties, and the parties to the disputes, looking to reduce the costs associated with the time and resources of the arbitral proceedings, smoothness of the proceedings, security, and transparency. However, human-related aspects of the arbitration proceedings may not be delegated to an automated arbitration process, and this limitation would be hard to overcome. However, A hybrid method can be imagined and predicted, whereby advantages of both the forms- traditional forms of Arbitration and artificial intelligence and emerging technologies can be best utilized while minimising the drawbacks associated with both.

END NOTES

[1]Bremmer I, 'The Top 10 Global Risks for 2024' (*Time*, January 8 2024) <https://time.com/6552898/top-10-global-risks-for-2024/> accessed March 7 2024.
[2]Ethereum Transaction History, ETHERSCAN, https://etherscan.io/chart/tx [https://perma.cc/SW7Z-KQZP].

[3]Ethereum by the Numbers, CONSENSYS (Dec. 6, 2018), https://media.consensys.net/ethereumby-the-numbers-3520f44565a9 [https://perma.cc/ KB8K-ANC4] ("Since late 2017, the number of successful calls to smart contracts has remained consistent at 1.2 million per day."); Pramod Chandersekhar, Ethereum Smart-Contracts: Most of Them Are Rarely Used!, HACKER NOON (May 16, 2018), https://hackernoon.com/ethereum-smart-contracts-most-of-them-are-rarely-used-   f45749730d3e [https://perma.cc/7UPL-F36J] (stating that roughly forty percent of Ethereum transactions utilize smart contracts).

[4]New technologies, such as the Internet of Things and Cloud computing, are taking advantage of this data-focused economy and introducing more robots and artificial intelligence in agriculture, for instance. This flourishing trend is comprising of big data, with great kinds of data that can be framed, critiqued, and used for decision making. For a ranging definitions of digital trade , see, J Meltzer, "Governing Digital Trade" (2019) 18 World Trade Review 23, at 33 (including those of the World Trade Organization (WTO) Work Program on Electronic Commerce and the U.S. International Trade Commission). Ciuriak and Ptashkina break down digital trade into five modes: D Ciuriak and M Ptashkina, "The Digital Transformation and the Transformation of International Trade" (2018), https://perma.cc/M2SS-4SJN.

[5]Smart manufacturing is a production process that links today's and tomorrow's assets with computing platforms, remote sensors, communication technologies, control simulation, data predictive analytics, and data-intensive modelling. See, ; A Kusiak, "Smart Manufacturing" (2018) 56 International Journal of Production Research 508–517.

[6]OECD, "Exploring Data-Driven Innovation as a New Source of Growth: Mapping the Policy Issues Raised by 'Big Data'" (2013), https://perma.cc/QX38-5LT8 (making acknowledgement of data products, data-intensive products, data-driven research and development, data-driven processes, data-driven marketing, data-driven organisations across various sectors.).

[7]D Ciuriak, "The Economics of Data: Implications for the Data-Driven Economy," in Data Governance in the Digital Age: Special Report (2018), at 12.

[8]McKinsey Global Institute, "The Internet of Things: Mapping the Value Beyond the Hype" (2015), https://perma.cc/PZ2A-EF7B; J Manyika and M Chui, "By 2025, Internet of Things Applications Could Have U.S. 11 Trillion Impact" (Fortune, 22 July 2015), https://perma.cc/93VS-UNC9.

[9]Its value admeasured, in comparison to worlds exhaustible natural resources, which are both depletable, and is continuously generated and advancing in progress, has capitulated its value in capitalisation of world's largest firms. See, Shaffer, G. (2021) 'Trade Law in a Data-Driven Economy: The Need for Modesty and Resilience', in S. Peng, C.-F. Lin, and T. Streinz (eds.) Artificial Intelligence and International Economic Law: Disruption, Regulation, and Reconfiguration. Cambridge: Cambridge University Press, pp. 29–53.Seven of the eight highly ranked companies in 2019 , often heavily delve on data, and they are: Microsoft, Apple, Alibaba, Amazon, Tencent (parent of WeChat), Facebook, Alphabet (parent of google) .Eighth is Berkshire Hathaway , which has Apple as its largest holding company. For using the services of Facebook, Google, WeChat, and Alibaba, through exchanging access to our data and us.See, N Statt and S Liao, "Facebook Wants to Be WeChat" (The Verge, 8 March 2019), https://perma.cc/PBW5-V5QV.

[10]Despite the slowness of the legal field in accepting technology as part and parcel of its practice and procedure, it has embraced it with such depth that enabled it to utilize it to increase docket speed, optimize case management, and reduce gaps in access to justice. *See* Anthony Davis, 'Future of Lawyers and (Law firms) in the   age   of   artificial intelligence,'(2018).https://www.americanbar.org/groups/professional_responsibility/publications/professional_l awyer/27/1/the-future-law-firms-and-lawyers-the-age-artificial-intelligence, 27 THE PROF LAW 3-45 (2020)

[11]Vannieuwenhuyse, Gauthier. 'Arbitration and New Technologies: Mutual Benefits'. Journal of International Arbitration 35, no. 1 (2018): 119–130, at page 120.

[12]Electronic   Data   Interchange.   *See   also*,   Hill   R   (On,   April   1999) <https://www.umass.edu/dispute/hill.htm> accessed August 29 2023.

[13]Alejandro Lopez Ortiz, 'Arbitration and IT', ARBITRATION INTERNATIONAL VOL. 21, No.3.

[14]Big Data refers to treating a large data set, which traditional databases lack in processing. *See*, Vannieuwenhuyse, Gauthier. 'Arbitration and New Technologies: Mutual Benefits'. Journal of International Arbitration 35, no. 1 (2018): 120.

[15]Blockchain Technologies are peer-to-peer relationships that ensure traceability and inviolability of operations, thus permitting highly secure technologies such as Bitcoin digital currency. *See* Chugh A and others, 'Why We Don't Need Blockchain to Manage Cases in International Arbitration' (*Kluwer Arbitration Blog*, May 13 2018) <https://arbitrationblog.kluwerarbitration.com/2018/05/13/dont-need-blockchain-manage-cases-international-arbitration/> accessed August 30 2023.

[16]Machine learning or deep learning technology is a kind of technology that permits an evidence-based program that automatically gives rise to the production of new information to strengthen its algorithm. *See*, Madhu Sanjeevi, 'Chapter 4- Decision Trees Algorithms, ' MEDIUM, (October 6, 2017) *available at Madhu Sanjeevi (Mady, 'Chapter 4: Decision Trees Algorithms' (Medium, October 23 2018) <https://medium.com/deep-math-machine-learning-ai/chapter-4-decision-trees-algorithms-b93975f7a1f1> accessed August 30 2023*.

[17]Text mining is a process of analyzing text-based documents for inferring structured information. Alschner, Wolfgang and Charlotte, Damien, Data Mining, Text Analytics, and Investor-State Arbitration (May 31, 2021). Forthcoming in: Pietro Ortolani et al. (eds.): International Arbitration and Technology, Wolters Kluwer, Ottawa Faculty of Law Working Paper No. 2021-17, Available at SSRN: https://ssrn.com/abstract=3857127 or http://dx.doi.org/10.2139/ssrn.3857127.

[18]There are undertakings and endeavours focused on revealing patterns from data from rulings rendered by decision makers to outcomes based on location, to go on to even reveal connections in a matter. See, Jnana Settle, Predictive Analytics in the Legal Industry: 10 Companies to Know in 2018, DISRUPTOR DAILY, available at https://www.disruptordaily.com/predictive-analytics-legal-industry-10-companies-know-2018/.

[19]Any indication to predictive analytics means those mechanisms and related algorithms that make sue of predictive analytics , artificial intelligence, and machine learning to determine the result of dispute or any associated result. According to few studies undertaken by institutions such as Institute for Transnational Arbitration: ITA in Review, predictive tools have been developed to keep the arbitrators impartial and independent. See, http://www.parisinnovationreview.fr/articles-en/predictive-justice-when-algorithms-pervade-the-law . Studies have also shown decisions where there is an increased use of predictive analytics by decision makers , for example , State of Wisconsin v. Loomis, 881 N.W.2d 749 (Wis. 2016), cert. denied 137 S.Cert. 2290 (2017). Carin Devins et al., The Law and Big Data, 27 CORNELL J.L. & PUB. POL'Y 357, 365 (2017). One of the important technology in this area, is Dispute Resolution Data, a company sharing a symbiotic relationship with arbitral institutions from 136 countries, providing arbitration specific data analytics. This initiative is led by American Arbitration Association ("AAA") and is supported by specialists worldwide, see, in this regard, Karen Maxwell, Computer says no: data analytics in arbitration, THOMSON REUTERS PRACTICAL LAW ARB. BLOG (Feb. 9, 2018), ninghttp://arbitrationblog.practicallaw.com/computer-says-no-data-analytics-in-arbitration/ ; A predictive tool may enable an arbitrator arriving at similar decisions to the ones he arrived at in previous cases, through analysis of particular cases, and through his own determinations in prior cases. There are two inferences that can be drawn from this presumption, firstly, that the arbitrator using predictive tools may not be biased, as his decision may be supported by outcome predicted using AI, and secondly, even if it is reasoned it may be prone to not be in compliance of impendence and impartiality- the essential dual core requirements-as the decision may come from assistance based reasoning, and he may be assumed to be bias in the given dispute, in consideration of alike findings held by him in previous cases. https://itainreview.org/articles/Fall2019/keeping-up-with-legal-technology.html.

[20]Vannieuwenhuyse, Gauthier. 'Arbitration and New Technologies: Mutual Benefits'. Journal of International Arbitration 35, no. 1 (2018): 119–130.

[21]*I*d at 119–130 and 120.

[22]*I*d at 121.

[23]For example, See, in the case of France, Kami Haeri, Sophie Challan Belval, Eléonore Hannezo & Bernardo Lamon, L'Avenir de la profession d' avocat, 52-62, (Feb 2017) www.justice.gouv.fr/publication/rapport_kami_haeri.pdf.

[24]Re: Third Speaker - Young-OGEMID Symposium No. 15: The Role of Artificial Intelligence in Shaping ADR Practices, Friday, July 21, 2023, 9:00:41 AM, PAUL COHEN, BARRISTER

[25]Gauthier Vannieuwenhyuse, 'Arbitration and New Technologies: Mutual Benefits', 35. J. INT ARB. (2018) at 119.

[26]José Marìa de la Jara, Alejandra Infantes, and Daniela Palma, ' Machine Arbitrator: Are We Ready?', Kluwer Arbitration, https://arbitrationblog.kluwerarbitration.com/2017/05/04/machine-arbitrator-are-we-ready/

[27]*I*d at p. 32.

[28]Queen Mary University of London, 2018 International Arbitration Survey: The Evolution of International Arbitration (London: White & Case LLP, 2018) p.32 (chart 35).

[29]I*d* at p.32.

[30]I*d* at p. 32.

[31]I*d* at p.32.

[32]Supra note 18 at p. 32.

[33]OpenLaw, OpenCourt: Legally Enforceable Blockchain-Based Arbitration, CONSENSYS (Oct. 18, 2018), https://media.consensys.net/opencourt-legally-enforceable-blockchain-based-arbitration3d7147dbb56f [https://perma.cc/C3MU-SP5L] [hereinafter OpenCourt]

[34]Ethereum Average Block Size Chart, ETHERSCAN, https://etherscan.io/chart/blocksize [https://perma.cc/5SRD-BLSN] (last visited Feb. 21, 2019); Ethereum Total Daily Gas Used Chart.

[35]Ongenae K, "AI Arbitrators … 'Does Not Compute'" in Jan De Bruyne and Cedric Vanleenhove (eds), Artificial Intelligence and the Law (Intersentia 2021) at page 103.

[36]This can be evidenced by operating, modifying, creating, cancelling, and transferring digital assets by Arbitration, panel, or a digital agent expert appointed by the automatic selection procedures laid down in the contract. If not chosen by the parties, the arbitrators are appointed by a specialist expert body such as The Society for Computer and Law.

[37]'Arbitration of Digital Disputes in Smart Contracts and the Release of the Digital Dispute Resolution Rules from the UK Jurisdiction Taskforce' (*Arbitration notes*, April 23 2021) <https://hsfnotes.com/arbitration/2021/04/23/arbitration-of-digital-disputes-in-smart-contracts-and-the-release-of-the-digital-dispute-resolution-rules-from-the-uk-jurisdiction-taskforce/> accessed March 12 2024

[38]Will the Commercialisation of Blockchain Technologies Change the Face of Arbitration? (https://arbitrationblog.kluwerarbitration.com/2018/03/05/topic- to-be-con

[39]Herian R, *Regulating Blockchain Critical Perspectives in Law and Technology* (Routledge, Taylor & Francis Group 2020).

[40]Aria and Aria, 'Blockchain Arbitration: Promises and Perils' (American Review of International Arbitration, March 23 2023) <https://aria.law.columbia.edu/blockchain-arbitration-promises-and-perils/#:~:text=Blockchain%20arbitration%20is%20conducted%20as,viewable%2Faccessible%20by%20the%20public> accessed August 25 2023.

[41]Private and online judicial dispute settlement mechanisms now solve millions of consumer disputes, and there is an increasing trend in courts to be in favour of online dispute settlement to render speedy and efficient access to justice in a formal environment; clients may solicit advice from their lawyers before entering into transactions or after the dispute has come into play but use technology to facilitate resolution of disputes between parties such as online suppliers, and consumers. See Jeremy 30, Philip Treleaven, Algorithmic Dispute Resolution— The Automation of Professional Dispute Resolution Using AI and Blockchain Technologies, The Computer Journal, Volume 61, Issue 3, March 2018, Pages 399–408, https://doi.org/10.1093/comjnl/bxx103.

[42]Decentralization denotes the factual presumption that no single authority decides with respect to the validation and mediation of singular transactions on a blockchain node. See, Kevin Werbach & Nicolas Cornell, Contracts Ex Machina, 67 DUKE L.J. 313, 327 (2017) ("In theory, no one can alter an existing transaction, because every block is linked in an immutable sequence."); Instead a photocopy version of the blockchain ledger is free of cost, accessible and for storage for any individual with device with the required compatibility.See, Jeremy M. Sklaro, Comment, Smart Contracts and the Cost of Inexibility, 166 U. PA. L. REV. 263, 267 (2017) ("Broadly labeled 'decentralized ledger technology' (DLT), the term spans a group of cryptographic tools and protocols to exchange, verify, and secure data without the need for centralized intermediaries."). See, also, Jimi S., Blockchain: What Are Nodes and Masternodes?, MEDIUM (Sept. 5, 2018), https://medium.com/coinmonks/blockchain-what-is-a-node-or-masternode-and-what-does-it-do4d9a4200938f [https://perma.cc/SNV5-LPYS] ("Nodes can be any kind of device (mostly computers, laptops or even bigger servers). Nodes . . . [nodes on a continuous level share data, so that they remain updated, and for doing so they store, transfer, and protect the data, so in conceptual terms, a blockchain exists on framework of nodes".]. These nodes refer to the devices, and form the foundation of the blockchain, and they also comprise subset of miners, that validate, and verify individual transactions on blockchain note, without which the transaction will not be posted.

[43]Will the Commercialisation of Blockchain Technologies Change the Face of Arbitration? (https://arbitrationblog.kluwerarbitration.com/2018/03/05/topic- to-be-con.

[44]IBM Website, 'What Is Blockchain Technology', accessed 19 December 2023.

[45]A Korinek and J. Stiglitz, ' Artificial Intelligence and its implications for Income Distribution, and Unemployment,' (2017) NBER Working Paper 24174 at 21.

[46]To attenuate on discussion of importance of international investment in general and on technology see, L Alfaro, 'Gains from Foreign Direct Investment: Macro and Micro Approaches' (2016) World Bank Economic Review; L Alfaro, 'Foreign Direct Investment: Effects, Complementarities, and Promotion' (2014) Harvard Business School Working Paper 15-006; R Echandi and others, 'The Impact of Investment Policy in a Changing Global Economy: A Review of the Literature' (2015) World Bank Group Policy Research Working Paper WPS 7437; L Colen and others, 'Foreign Direct Investment as an Engine for Economic Growth and Human Development'.

[47]Shaffer G, "Trade Law in a Data-Driven Economy: The Need for Modesty and Resilience" in Shin-yi Peng, Ching-Fu Lin and Thomas Streinz (eds), Artificial Intelligence and International Economic Law: Disruption, Regulation, and Reconfiguration (Cambridge University Press 2021).

[48]There are two regimes at play to regulate 'Data localization requirements- one being about soft law requirement or 'hard law' requirement, with the former inducing pressure to comply with EU GDPR's data localization requirements, and on the other hand, the other regime directly putting a direct requirement to comply with the data localization requirement. *See* Chander, Anupam. "Is Data Localization a Solution for Schrems II?" Journal of International Economic Law. 23.3 (2020): 771–784. Web.

[49]M. Piers and C. Aschauer, 'Conclusion', in M. Piers and C. Aschauer (eds), Arbitration in the Digital Age (Cambridge: Cambridge University Press, 2018), p. 292.

[50]M. Wahab and E. Katsh, 'Revolutionizing Technologies and the Use of Technology in International Arbitration', in M. Piers and C. Aschauer (eds), Arbitration in the Digital Age (Cambridge: Cambridge University Press, 2018), pp. 46–47.

[51]H. Snijders, 'Arbitrage en AI: van arbitrage naar robotrage en van menselijke arbiter naar robotarbiter?', Tijdschrift voor Arbitrage, 2019, no. 1, pp. 4–5.

[52]Snijders, 'Arbitrage en AI: van arbitrage naar robotrage en van menselijke arbiter naar robotarbiter?', p. 5..

[53]M. Scherer, 'Artificial Intelligence and Legal Decision-Making: The Wide Open?', Journal of International Arbitration, 2019, vol. 36, no. 5, p. 540

[54]Vijayan S, Gazzini T and Braulotte T, 'Autonomous Arbitration in the Era of the Metaverse' (Kluwer Arbitration Blog, March 7 2022) <https://arbitrationblog.kluwerarbitration.com/2022/03/11/autonomous-arbitration-in-the-era-of-the-metaverse/> accessed August 30 2023.

[55]Escrow account management is introduced in on-chain applications that necessitate its application to aid in the formation of agreements. See, PRIMAVERA DE FILIPPI & AARON WRIGHT, BLOCKCHAIN AND THE LAW 43 (2018) ("Nevertheless, in very substantial terms majority of, blockchains are distinguished by their capability for inducement of putting into practice of software which is not under the powerful ownership and direction of any single party".)   At the start of a transaction, a buyer places an adequate amount of funds in the smart contracts; such crypto payment shall stay in escrow till the time 1) the customer complies with the conditions specified therein in satisfaction of the seller's performance or 2) any started dispute, controversy or a claim has been satisfied. Importantly, a purchaser's manifestation of approval may only take place if a dispute resolution clause- such as JUR or Kleros- is designated ex-ante. Such a code-based selection frees the contract, falls short of final determination, and induces the application to resolve a controversy. Depending on the platform type, certain procedural safeguards may be brought in place ex-ante; for example, Kleros necessitates its users before contract formation, requires users to select several jurors, choice of specialised sub-court, and number and type of remedies. See, See, e.g., Kleros White Paper, supra note 88 (manuscript at 3) (" For this to occur Kleros has to be designated as arbitrator in Smart Contracts."); A host or variety of sub-courts such as "International Deliveries Court- a sub-court of "E-Commerce" Court (which is a sub-court of "General Court") offered by Kleros that have an intention to formulate set of arbitrators or with expertise focused to a given smart contract. See Kleros White Paper, supra note 88 (manuscript at 11); FEDERICO AST ET AL., KLEROS, DISPUTE REVOLUTION: THE KLEROS HANDBOOK OF DECENTRALIZED JUSTICE 31 (2019) [herein referred   as   KLEROS   HANDBOOK], https://ipfs.kleros.io/ipfs/QmZeV32S2VoyUnqJsRRCh75F1fP2AeomVq2Ury2fTt9V4z/DisputeResolution-Kleros.pdf [https://perma.cc/DA9N-ZL7R] ("Contracts concluded between parties will detail about sub- court wherein a decision on a dispute will be determined, notwithstanding but inclusive of jurors that shall be selected for the first instance decision."); see also E-mail from Stuart Jackson, Commc'ns Lead, Kleros, to Michael Buchwald (Feb. 18, 2019, 06:46 EST) [hereinafter Jackson E-mail] (on le with author) ("In a positive affirmation, answers are pre-decided in coding formulation (there is a limited pair of responses/outputs/ answers).").

[56]NFTs can be described as tokens of ownership over unique items. From that perspective , NFTs can be described as a token of ownership over unique assets, for instance, deed for a digital or physical realm. See for discussion in elaboration for this in, Ethereum Website, 'Non-fungible Tokens', accessed 19 December 2023. In recent times, more so despite of the fact fallacies arising from the substantial presumption of International Investment Law covering physical investments in mind, and due to imprecise nature of the foundational basis on which these bitcoins and blockchain technologies are based, it is ascertained by few commentators, that if the investment covered comprises of the mixed or digital assets such as: Non-fungible tokens. See, E Horváth and S Klinkmüller, 'The Concept of "Investment" in the Digital Economy: The Case of Social Media Companies' (2019) 20 JWIT 577, 580; J Chaisse and C Bauer, 'Cybersecurity and the Protection of Digital Assets: Assessing the Role of International Investment Law and Arbitration' (2019) 21 Vanderbilt Journal of Entertainment and Technology Law 549; D Collins, 'Applying the Full Protection and Security Standard of International Investment Law to Digital Assets' (2011) 12 JWIT 225; Q Zhang and A Mitchell, 'Data Localization and the National Treatment Obligation in International Investment Treaties' (2022) 21 WTR 391,

and R Polanco, 'The Impact of Digitalization on International Investment Law: Are Investment Treaties Analogue or Digital?' (2023) 24 German Law Journal 574.

[57]Recent attention to the usage and controversy posed in particular to usage of NFTs in commercial transactions can be given with respect to recent litigation cases of :In relation to investment treaty claims with respect to digital assets, Hermes, whereby, judge approved the request to prevent the sale of MetaBirkin NFT, on the grounds as held by the jury that that such sale infringed Hermes trademarks rights. See, B Brittain, 'Hermes Wins Permanent Ban on "MetaBirkin" NFT Sales in US Lawsuit' (Reuters, 23 June 2023) accessed 19 December 2023. In another case, Nike v. Stoxx, Stoxx was held to be violating trademark rights of Nike, by selling NFTs those were alike to that of the Nike . Y Choi, 'Belgium: 4 NFT Lawsuits to Follow' (15 March 2023) accessed 19 December 2023. These cases reflect the increasing trend to acknowledge digital assets are assets and as objects of property. See also, S Sullivan, '"NFTs: Future or Fad?" Excerpts from a Practical Discussion of NFT Use Cases and Copyright Concerns Raised by NFT Offerings' (2022) 45 Columbia Journal of Law and Arts 365.

[58]See for example 'Non-fungible Tokens Market Size and Forecast' (June 2022), Verified Market Research, accessed 15th March 2024.

[59]A Walch, 'The Path of the Blockchain Lexicon (and the Law)' (2017) 36 Review of Banking and Financial Law 714; see also M Fenwick and others, 'Regulation Tomorrow: What Happens When Technology Is Faster Than the Law?' (Tilburg University, TILEC Discussion Paper No 2016-024, 2016), accessed on 15th April, 2024.

[60]OpenLaw, OpenCourt: Legally Enforceable Blockchain-Based Arbitration, CONSENSYS (Oct. 18, 2018), https://media.consensys.net/opencourt-legally-enforceable-blockchain-based-arbitration3d7147dbb56f [https://perma.cc/C3MU-SP5L] [hereinafter OpenCourt]. ("Unlike other bills of sale, our bill of sale is structured using our markup language and incorporates the Open Court arbitration system, comprised of a series of smart contracts."); see also see ALEXANDER SHEVTSOV, JURY.ONLINE, RESPONSIBLE ICO 4 (2019), https://icosbull.com/whitepapers/110/Jury.Online_whitepaper.pdf [https://perma.cc/F26T-FY6J]; JUR, WHITE PAPER V.0.3, at 33-34 (2018) [hereinafter JUR WHITE PAPER], AT PAGE at 33 https://icosbull.com/whitepapers/4088/JUR_whitepaper.pdf [https://perma.cc/95UC-L28U]; Clément Lesaege & Federico Ast, Kleros Short Paper v1.0.6, at 3 (Nov. 2018) [hereinafter Kleros White Paper] (unpublished manuscript),https://www.researchgate.net/publication/318877800_Kleroterion_a_decentralized_court_for_the_Internet [https://perma.cc/J9CC-JKKP];, ("Another player offering an interactive graphical interface that allows ordinary uses to formulate smart contracts with binding effect using natural legal language, that is later on converted to a smart contract.").

[61]Solidity, SOLIDITY, https://solidity.readthedocs.io/en/v0.5.3/ [https://perma.cc/XP6BR7LZ] (last visited March 14, 2019) ("Solidity is an object-oriented, high-level language for implementing smart contracts.").

[62]Compare this system to Kleros, which actively avoids automatic incorporation of a natural language contract into the dispute. See FEDERICO AST ET AL., KLEROS, DISPUTE REVOLUTION: THE KLEROS HANDBOOK OF DECENTRALIZED JUSTICE 31 (2019) [hereinafter KLEROS HANDBOOK], https://ipfs.kleros.io/ipfs/QmZeV32S2VoyUnqJsRRCh7, at 104 ("In absence of an agreement in written form the plaintiff can lay out communication with the defendant prior to the agreement being implemented in order to prove that the defendant did not meet the requirements understood upon.").

[63]Michael Buchwald, COMMENTARY, ' SMART CONTRACT DISPUTE RESOLUTION: THE INESCAPABLE FLAWS OF BLOCKCHAINBASED ARBITRATION', University of Pennsylvania Law Review, VOL 168, 2020, page 1386-87.

[64]e.g., Ivica Nikolić, Aashish Kolluri, Ilya Sergey, Prateek Saxena & Aquinas Hobor, Finding The Greedy, Prodigal, and Suicidal Contracts at Scale, in PROCEEDINGS OF THE 34TH ANNUAL COMPUTER SECURITY APPLICATIONS CONFERENCE 653, 659-660 (2018)

[65]Nikhilesh De, QuadrigaCX Owes Customers $190 Million, Court Filing Shows, COINDESK (Feb. 1, 2019, 9:28 PM), https://www.coindesk.com/quadriga-creditor-protection-ling

[66]Supra note 19.

[67]Butler, N., & Tarawneh, J. (2024). A BIT of Protection for Non-Fungible Tokens: Digital Assets as Catalysts for Economic Growth. Journal of World Investment & Trade, 25, 93-129. Advance online publication. https://doi.org/10.1163/22119000-12340319, at page 97.

[68]According to this conceptualisation of computing power-based AI application, distrust arising from information asymmetry is dealt by building upon financial investment trust solution in smart contract, and this is achieved by depending on functional attributes of blockchain based smart contracts. As has been evidenced, through operation of this process, financial investment is stored, processed, and transferred to different nodes in blockchain. By seeking financial investment information, by establishing financial investment service, product

contract fraud arbitration, and investment contract fraud arbitration, further trust is consolidated in such intelligent contracts. See more clarification about its niceties, and prejudices associated in the coding algorithm, Wei Xiong,Danping Wan, 'Financial Investment trust mechanism based on smart contracts', PLOS ONEvol. 18issue 7(2023)pp: e0287706Published by Public Library of Science.

[69]Supra note 37.

[70]Is Online Dispute Resolution The Future of Alternative Dispute Resolution? (https://arbitrationblog.kluwerarbitration.com/2018/03/29/online- dispute-resolution-future-alternative-dispute-resolution/)

[71]A study conducted in 2011 indicated that significant cost savings could be achieved by using predictive technologies instead of manual review as "the technology-assisted reviews require, on an average, human review of 1.9 % of the documents, a fifty-fold savings over manual review ". *See* https://arbitrationblog.kluwerarbitration.com/2020/02/23/artificial-intelligence-a-driver-for-efficiency-in-international-arbitration-how-predictive-coding-can-change-document-production/

[72]Chandra Vanipenta v. SVB Financial Group, 3:23-cv-01097, (N.D. Cal.)

[73]Li R, 'Are Chatbots Poised to Take over Disputes?: Robert Li: CDR Article' (*Arbitration, Litigation, Dispute Resolution | CDR Magazine*) <https://www.cdr-news.com/categories/litigation/18802-are-chatbots-poised-to-take-over-disputes> accessed August 30 2023 https://www.cdr-news.com/categories/litigation/18802-are-chatbots-poised-to-take-over-disputes.

[74]Fisher, Angelina and Streinz, Thomas, Confronting Data Inequality (May 1, 2022). 60(3) Columbia Journal of Transnational Law 829-956 (2022), World Development Report 2021 background paper, IILJ Working Paper 2021/1, NYU School of Law, Public Law Research Paper No. 21-22, Available at SSRN: https://ssrn.com/abstract=3825724 or http://dx.doi.org/10.2139/ssrn.3825724. Here, in this section, we briefly concern the concept of data inequality, which refers to unequal power in capturing the ability to access the data and concerns 'power to satisfy' – meaning the ability to convert what becomes data or not.

[75]Social inequality, as studied in various scholarships, can amount to, at least concerning International Economic Law – 'surveillance, algorithmic discrimination, digital labour, automation of the welfare state, digital mapping', See, Cathy O'Neill, Weapons of Math Destruction (2016), Safiya U. Noble, Algorithms of Oppression (2018); Rediet Abebe, Designing Algorithms for Social Good (2019) (PhD dissertation, Cornell University). See Cioffi K and Adelmant V, 'Digital Welfare State and Human Rights Project' (Center for Human Rights & Global Justice) <https://chrgj.org/focus-areas/technology/digital-welfare-state-and-human-rights-project/> accessed August 27 2023.

[76]Streinz T, *Artificial Intelligence, and International Economic Law: Disruption, Regulation* (CAMBRIDGE UNIV PRESS 2021).

[77]Scherer refers to the four Vs: volume, variety, velocity, and veracity (deriving from the five Vs of big data). *See* Scherer, 'Artificial intelligence and Legal Decision Making: The Wide Open?', p. 554.

[78]MICHAEL BUCHWALD, 'SMART CONTRACT DISPUTE RESOLUTION: THE INESCAPABLE FLAWS OF BLOCKCHAINBASED ARBITRATION', University of Pennsylvania Law Review, Volume 168; J.D., 2020, 1374.

[79]Ongenae K, "AI Arbitrators … 'Does Not Compute'" in Jan De Bruyne and Cedric Vanleenhove (eds), Artificial Intelligence and the Law (Intersentia 2021) at p.121.

[80]Ongenae K, "AI Arbitrators … 'Does Not Compute'" in Jan De Bruyne and Cedric Vanleenhove (eds), *Artificial Intelligence and the Law* (Intersentia 2021) at p.105.

[81]On the 'transnational' nature of international Arbitration, see E. Gaillard, Legal Theory of International Arbitration (Leiden: Martinus Nijhoff Publishers, 2010), 204 p.

[82] https://www.mondaq.com/india/new-technology/1308102/artificial-intelligence-and-arbitration

[83]Certain legal outcomes are more likely to be published in professional journals than others. See E. Cheng, 'Detection and Correction of Case-Publication Bias', *Thate Journal of Legal Studies*, 2018, vol. 48, no. 1, p. 151

[84]Scherer, 'Artificial Intelligence and Legal Decision-Making: The Wide Open?', p. 556.

[85]https://www.cdr-news.com/categories/litigation/18802-are-chatbots-poised-to-take-over-disputes

[86]Oxford Analytica (2023), "Defamation case against ChatGPT signals larger trend", Expert Briefings. https://doi.org/10.1108/OXAN-ES278233

[87]https://www.cdr-news.com/categories/litigation/18802-are-chatbots-poised-to-take-over-disputes.

[88]Team, I. G. P. (2020). EU general data protection regulation (GDPR) - an implementation and compliance guide (4th edition) (Fourth ed.). IT Governance Publishing. See, Regulation (EU) 2016/679 (General Data Protection Regulation) in the current version of the OJ L 119, 04.05.2016.

[89]https://www.mondaq.com/india/new-technology/1308102/artificial-intelligence-and-arbitration.

[90]Smith P, 'Arbitration Remains Attractive for Digital Disputes in 2024' (CRS, January 24 2024) <https://www.charlesrussellspeechlys.com/en/insights/expert-insights/dispute-resolution/2024/arbitration-remains-attractive-for-digital-disputes-in-2024/> accessed March 7 2024.

[91]*Soleymani v Nifty Gateway* LLC [2022] EWHC 773 (Comm), [2022] Bus LR 521, [2022] 2 Lloyd's Rep 499, [2022] All ER (D) 80 (Apr).

[92]Gambling Act 2005 as amended by the Gambling (Licensing and Advertising) Act 2014.

[93]*Chechetkin v Payward Ltd and others* [2022] EWHC 3057 (Ch), [2023] 2 All ER (Comm) 181, [2023] Bus LR 1503.

[94]Edna Sussman and Solomon Ebere, "All's Fair in Love and War – Or Is It? Reflections on Ethical Standards for Counsel in International Arbitration" (2011) 22 Am. Rev. Int'l. Arb. 611, 612. Although there is no universal agreement on what constitutes guerrilla tactics. See, Sussman and Ebere , ' All's Fair in Love and War—Or Is It?'. Catherine Rogers has argued that it can be described as a practice, one attorney for example may regard one practice as a legitimate strategy to protect a party's right, but on the other hand, other opposing party, counsels or members of the tribunal may regard it as unfair practice or guerrilla tactice. See, Catherine Rogers, 'Ethics in International Arbitration' (Oxford University Press, 2014), page 2.

[95]George A. Bermann, The Future of International Commercial Arbitration, THE CAMBRIDGE COMPANION TO INTERNATIONAL ARBITRATION, C. L. LIM (ED.), CAMBRIDGE UNIVERSITY PRESS (2021). Available at: https://scholarship.law.columbia.edu/faculty_scholarship/3305, at 146.

[96]Jan Paulsson , ' Standards of Conduct for Counsel in International Arbitration ', 3 Am. Rev. Int'l Arb . 214 (1992) ; Jan Paulsson , ' Ethics, Elitism, Eligibility ', 14 J. Int'l Arb . 13 (1997) ; Detlev F. Vagts , ' Th e International Legal Profession: A Need for More Governance? ' 90 Am. J. Int'l L . 250 , 250 (1996) ; V.V. Veeder , ' Th e 2001 Goff Lecture—Th e Lawyer's Duty to Arbitrate in Good Faith ', 18:4 Arb. Int. 431 (2002) ; see also John Toulmin , ' A Worldwide Common Code of Professional Ethics? ' 15 Fordham Int'l L.J . 673 (1992) .

[97]Jan Paulsson, Universal Arbitration What We Gain, What We Lose, Chartered Institute of Arbitrators (CIArb) Alexander Lecture (November 29, 2012).

[98]Although it is lesser prone to criticism to international investment arbitration, it still has to deal with negative aspects such as: excessive delay, costs, arbitrator neutrality , and exceeding formality,See, George A. Bermann, The Future of International Commercial Arbitration, THE CAMBRIDGE COMPANION TO INTERNATIONAL ARBITRATION, C. L. LIM (ED.), CAMBRIDGE UNIVERSITY PRESS (2021). Available at: https://scholarship.law.columbia.edu/faculty_scholarship/3305

[99]An example of rules that promote honesty and integrity in arbitral proceedings at the international level is stipulated by LCIA, which prohibits making false statements, relying on false evidence, or concealing any documents. See, LCIA Rules, Annex at paras. 3–5. See, Scherer, Maxi, Lisa Richman, and Rémy Gerbay. , 'Arbitrating Under the 2020 LCIA Rules: A User's Guide', Anonymous Translator(, Alphen aan den Rijn, Wolters Kluwer Law International, 2021).

[100]Singapore Institute for Arbitrators (SIARB) have introduced, guidelines for Party -appointed Representatives Ethics, and this consist of three loosly formulated guidelines, namely: a) party should respect indepence of the tribunals international proceedings, b) should act with honesty and integrity, and c) should treat others with dignity and fairness. See, Singapore Institute of Arbitrators (SIArb), SIArb Guidelines on Party-Representative Ethics (April 26, 2018), www.siarb.org.sg/images/SIARB_Party-Rep-Ethics_Guidelines_Aprl18 .pdf

[101]Some of these rules and regulations concern Prague Rules drafted in 2018, to promote expediency in arbitration proceedings in continental system, precisely for continental style of inquisitorial style of taking evidence , SeePrague Rules, Working Group Note, Appendix I. In the US, the AAA in conjunction with the ABA have drafted Code of Ethics for Arbitrators in Commercial Disputes, that contemplates 10 set of canonical standards for arbitrators, and in specific, more so on party appointed arbitrators. See, American Arbitration Association (AAA), The Code of Ethics for Arbitrators in Commercial Disputes (March 1, 2014), www.adr.org/sites/default/files/document_repository/Commercial_Code_of_Ethics_for_ Arbitrators_2010_10_14.pdf

[102]Robert A. Ferguson , ' Holmes and the Judicial Figure ', 55 U. Chi. L. Rev . 506 , 511 (1988) (quoting Henry J. Abraham, The Judicial Process , 5th edn., (1986) 55). It is important to take into consideration that John Marshall held an important position as a Supreme Court judge in the history of the US judicial and legal system, as he helped in establishing basis for judicial review, and Supreme Court at par with Government as co-equal for coordinate jurisdiction and competence on certain matters. Discussing that would be outside the scope of this article.

[103]Smith, P. (2024) *Arbitration remains attractive for digital disputes in 2024*, *CRS*. Available at: https://www.charlesrussellspeechlys.com/en/insights/expert-insights/dispute-resolution/2024/arbitration-remains-attractive-for-digital-disputes-in-2024/ (Accessed: March 7 2024).

[104]*Chapter 20: Confidentiality in International Arbitration,* in *International Commercial Arbitration* 2779, 2785, (Gary B. Born ed., 2d ed., Kluwer Law International, 2014).

[105]Edna Sussman and Solomon Ebere, "All's Fair in Love and War – Or Is It? Reflections on Ethical Standards for Counsel in International Arbitration" (2011) 22 Am. Rev. Int'l. Arb. 611, 612. Although there is no universal agreement on what constitutes guerrilla tactics. See, Sussman and Ebere , ' All's Fair in Love and War—Or Is It?'. Catherine Rogers has argued that it can be described as a practice, one attorney for example may regard one practice as a legitimate strategy to protect a party's right, but on the other hand, other opposing party, counsels or members of the tribunal may regard it as unfair practice or guerrilla tactice. See, Catherine Rogers, 'Ethics in International Arbitration' (Oxford University Press, 2014), page 2.

[106]George A. Bermann, The Future of International Commercial Arbitration, THE CAMBRIDGE COMPANION TO INTERNATIONAL ARBITRATION, C. L. LIM (ED.), CAMBRIDGE UNIVERSITY PRESS (2021). Available at: https://scholarship.law.columbia.edu/faculty_scholarship/3305, at 146.

[107]Matthew Dylag & Harrison Smith (2023) From cryptocurrencies to cryptocourts: Blockchain and the financialization of dispute resolution platforms, Information, Communication & Society, 26:2, 372-387, DOI: 10.1080/1369118X.2021.1942958.

[108]Ongenae K, "AI Arbitrators … 'Does Not Compute'" in Jan De Bruyne and Cedric Vanleenhove (eds), Artificial Intelligence and the Law (Intersentia 2021)

[109]For instance, the Rome Convention of June 14 1980, regarding the law applicable to contractual relationships, results in a challenging position to ascertain the law applicable to contracts entered into or enforced by electronic means, often ending in disappointing resolutions of disputes.

[110]Art.1496 of the Code of Civil Procedure.

[111]s.1056 of the Code of Civil Procedure.

[112]Art,187(VIII) of the Federal Private International Law Act 1987

[113]Art 34. of Arbitration Act 60/2003.

[114]Art. 33 of the Arbitration Act 31/ 1986.

[115]Art.1054 of the Code of the Civil Procedure: Arbitration Act.

[116]Art.39 of Law 27 of 1994, as amended by Law 9 of 1997.

[117]Lex Informatica: The Formulation of Information Policy Rules through Technology 76 Tex. L. Rev. 553 (1997-1998).

[118]Alejandro López Ortiz, Arbitration, and IT, Arbitration International, Volume 21, Issue 3, September 1 2005, Pages 343–360, https://doi.org/10.1093/arbitration/21.3.343.

[119]Refer to as a Business-to-Business relationship.

[120]Refer to as Business to Commerce relationship.

[121]Refer to as Peripheral-to-Peripheral relationship.

[122]Directive 2000/31/EC of the European Parliament and of the Council of June 8 2000, on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market ('Directive on electronic commerce') OJ L 178, 17.7.2000, p. 1–16 (ES, DA, DE, EL, EN, FR, IT, NL, PT, FI, SV).

[123]An internal market comprises an area without internal frontiers, that ensures the free flow of goods and services, and in order for the consumers to develop confidence and gain benefits from the digital dimension of the internal market, it is a pre-requisite to have access to an easy, simple, efficient, and low cost of solving controversies arising from the sale of goods or supply of services online, and it is a significant aspect especially when shoppers carry out transactions transnationally.

[124]REGULATION (EU) No 524/2013 OF THE EUROPEAN PARLIAMENT ANDOF THE COUNCILof 21 May 2013on online dispute resolution for consumer disputes and amending Regula-tion (EC) No 2006/2004 and Directive 2009/22/EC(Regulation on consumer ODR) OJ C 181, 21 June 2012, p. 99. Article 20 (3) provides for enlistment of all entities by 9th January 2016. This regulation has to be read parallelly with Directive 2013/11/ EU.

[125]Serge Gijrath, Simone van der Hof. 'Chapter 16-Regulation 524/2013/EU', *(ODR for Consumer Disputes Regulation.* Kluwer Law International, 2018. Print) at page 867.

[126]Processing of personal information under this Regulation is conditioned on stringent guarantees of confidentiality, and be in consonance with requirements of protection of personal data Directive 95/46/EC OJ L 281, 23 November 1995, p. 31 of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data, and Regulation (EC) No 45/2001 of the European Parliament and of the Council of 18 December 2000 OJ L 8, 12 January 2001, p. 1. on the protection of individuals with regard to the processing of personal data by the Community institutions and bodies and on the free movement of such data, and such provisions of confidentiality are contingent on national legislations regulating privacy and confidentiality.

[127]This obligation is subject to Article 6 (1) (t) and 8 of Directive 2011/83/EU of European Parliament and of the Council of 25th October 2011 on consumer rights, OJ L 304, 22 November 2011, p. 64. Article 6 (1) (t) encapsulates that in case of contracts concluded entered into off premises or at distance, the traders are under an obligation to inform the consumers of which out-of-court redress or complaint mechanisms they are entitled to access, and how to access such mechanisms, to which the trader is bound to, and before the consumer is obliged to the trader by the contract.

[128]Serge Gijrath, Simone van der Hof. 'Chapter 16-Regulation 524/2013/EU', *(ODR for Consumer Disputes Regulation*. Kluwer Law International, 2018. Print).

[129]Supra note 73.

[130](Environmental justice / environmental racism) <https://www.ejnet.org/ej/> accessed August 30 2023.

[131]Refer to as European Extra Judicial Network.

[132]Online   Dispute   Resolution'   (Online   Dispute   Resolution | European   Commission) <https://ec.europa.eu/consumers/odr/main/?event=main.home2.show> accessed August 30 2023.

[133]Eurochambres @Eurochambres 25 Aug 1695024854456500663   and others, 'Home' (*Eurochambres*, 31 July 2023) <https://www.eurochambres.eu/> accessed 30 August 2023

[134]Alejandro López Ortiz, Arbitration and IT, Arbitration International, Volume 21, Issue 3, September 1 2005, Pages 343–360, https://doi.org/10.1093/arbitration/21.3.343

[135]An example of this can be given of Square Trade(www.squaretrade.com), which is an initiative whereby the disputes between private parties arising from auctions on the eBay website are resolved by the appointment of a third party on the choice of parties, who will then mediate between the parties, or furnish a binding award, which results in arbitration proceedings. As far as the protection of the privacy of Internet users is concerned, it is sufficient to issue and rely on the American Trust e-quality seal (www.truste.org).

[136]UNCITRAL Model Law on Electronic Commerce of December 16 1996 ("Model Law on Electronic Commerce"). In fact, this piece of law has been an inducement for other legislations, such as Directive 2000/31/EC of the European Parliament and the Council of June 8 2000, which deals with aspects of information service providers, specifically electronic commerce, in the internal market.

[137]These were the results of the endless efforts in research, updating, negotiation, drafting, and conclusion of these instruments were the result of UNCITRAL Working Group IV (Electronic Commerce).

[138]https://www.mondaq.com/india/new-technology/1308102/artificial-intelligence-and-arbitration.

[139]Model Law on International Commercial Arbitration 1985 (United Nations Commission on International Trade Law [UNCITRAL]) UN Doc A/40/17, Annex I.

[140]Model Law on International Commercial Arbitration 1985 (United Nations Commission on International Trade Law [UNCITRAL]) UN Doc A/40/17, Annex I.

[141]Arbitration Rules of Singapore International Arbitration Centre, 2016, r. 19.1.

[142]*Id* r. 19.2.

[143]In addition, these provisions exist in arbitral rules of institutions such as the London Court of International Arbitration Rules, the Hong Kong International Arbitration Centre Rules, and the International Chamber of Commerce ["ICC"] similarly provide the same grounds. See London Court of International Arbitration Rules, 2014, arts. 14 (4) (ii) 22 (1) (vi); Rules of Arbitration of Hong Kong International Arbitration Centre, 2013, art. 22.2; Rules of Arbitration of International Chamber of Commerce Rules, 2012, art. 25 (1) [*from now on* 'ICC Rules'].

[144]Francesco Uribarri Soares, 'New Technologies and Arbitration,' (2018) 7 Indian J Arb L 84 at page 86.

[145]Internet Corporation for Assigned Names and Numbers, a California-based organization regulated by private law, administers the assignment of numerical addresses and domain names on the Internet.

[146]These rules and dispute settlement have been extended to some country-code domain names. Moreover, there are different rules for Inter-Registrar domain name transfers (Registrar Transfer Dispute Resolution Policy (TRDP).

[147]Uniform Domain Name Resolution Policy of August 26 1999.

[148]URDP Policy is also, at present, applied to the generic domain names: .aero, .biz., .coop, .info, .museum, .name. and .pro, also covering national domain names such as .nu, .tv, and .ws. Moreover, unique rules and dispute resolution systems have been developed over time for generic domain names.

[149]For example, Rule 4 (a) of the URPD stipulates that the domain name of the owner shall be cancelled or be transferred to the third party claimant if they can establish the following circumstances, namely: a) the domain name is identical or confusingly similar to the trade mark or service mark, in which the claimant has a right, the owner has not legitimate rights or interests in the domain name, or that the domain name has been registered but is being utilized in a manner which depicts 'bad faith'. The lucidity of these rules is indicative of the fact of the intention of the ICANN and WIPO to ensure that decisions on the 'origin of registration of the domain names' get resolved at an administrative level, that the 'cybersquatting' rules do not lead to such a complexity to demand

the cognizance of the court system. However, the panellist's wide decisions have greatly expanded the scope of the meaning of rule 4 (a), and at times, have undertaken an unreasonable analysis of the priority of distinctive signs and have rendered decisions concerning the validity and legitimacy of the rights of the parties.

[150]J. Kevin Gray, ' *URDP- The First Nine Months* as cited in Patrick D. Kelley, 'Emerging Patterns in Arbitration under the Uniform Domain-Name Dispute-Resolution Policy' (2002) 17 Berkeley Tech LJ 181.

[151]Schultz, Catherine A. and Hofflander, Courtney A. (2013) " Reverse Domain Name Hijacking and the Uniform Domain Name Dispute Resolution Policy: Systematic Weaknesses, Strategies for the Respondent, and Proposed Policy Reforms," Cybaris®: Vol. 4: Iss. 2, Article 2. Available at: https://open.mitchellhamline.edu/cybaris/vol4/iss2/2.

[152]Andrew Allemann, UDRP panellists don't do their job deciding reverse domain name hijacking, DOMAIN NAME WIRE, (August 20, 2012), http://domainnamewire.com/2012/08/20/arbitration-reverse-domain-name-hijacking/

[153]Uniform Domain Name Dispute Resolution Policy, INTERNET CORP. FOR ASSIGNED NAMES & NOS. (October 24, 1999) [from now on UDRP Policy], http://www.icann.org/en/help/dndr/udrp/policy.

[154]Supra note 73.

[155]Supra note 73.

[156]Adopted by the United Nations Conference on International Commercial Arbitration on June 10 1958 Citation: 330 UNTS 38; 21 UST 2517; 7 ILM 1046 (1968) Cmnd 6419.

[157]United Nations Commission on International Trade Law. (1999). UNCITRAL model law on electronic commerce, with a guide to enactment, 1996: with additional article 5 bis as adopted in 1998. New York: United Nations, https://uncitral.un.org/en/texts/ecommerce/modellaw/electronic_commerce

[158]1958 Convention on the Recognition and Enforcement of Foreign Arbitral Awards330 UNTS 3, [1975] ATS 25, 4 ILM 532 (1965), UKTS 26 (1976).

[159]R. Hill, 'Online Arbitration Issues and Solutions' in (1999) 15 (2) *Arb Int'l* 199 at p. 200,

[160]UNCITRAL WG II (Arbitration and Conciliation), 36th Session, New York, 4-8th March 2002, *See*, United Nations Conference on Trade and Development (UNCTAD), *Dispute Settlement International, Commercial Arbitration,* 5.9.'Electronic Arbitration ' (New York and Geneva, 2003) pp 20, and 21 at (http//unctad.org). Nevertheless, this interpretative instrument is not binding.

[161]UNCITRAL WG II (Arbitration and Conciliation), 41st session Vienna, 13-17 September 2004).

[162]Model Law on International Commercial Arbitration 1985 (United Nations Commission on International Trade Law [UNCITRAL]) UN Doc A/40/17, Annex I

[163]1958 Convention on the Recognition and Enforcement of Foreign Arbitral Awards330 UNTS 3, [1975] ATS 25, 4 ILM 532 (1965), UKTS 26 (1976).

[164]Adopted by the United Nations Conference on International Commercial Arbitration on June 10 1958 Citation: 330 UNTS 38; 21 UST 2517; 7 ILM 1046 (1968) Cmnd 6419.

[165]Attention should be given to Article 8 of the Model Law on Electronic Commerce, which stipulates that requirements for 'original' or 'duly certified copy' are met in case of information stored electronically in case of arbitration agreement.

[166]Adopted by the United Nations Conference on International Commercial Arbitration on June 10 1958 Citation: 330 UNTS 38; 21 UST 2517; 7 ILM 1046 (1968) Cmnd 6419.

[167]M. Gomez Jane, ' EL Arbitraje internationcionale en la Nueva ley de arbitrage' in *Diario La Ley* 5952, February 11 2004, pp 1-5, at p. 4.

[168]Article 2.2 (e) of the 2020 IBA Rules stipulates that it is important for the parties and arbitrators to consult with each other early on in their proceedings regarding issues such as cybersecurity.

[169]International Bar Association Rules on Taking Evidence in International Arbitration, *Definitions,* (May 29, 2010).

[170]Article 5.3 (b) of the IBA Rules 2020 expressly requires the parties to submit additional or revised expert panel reports to deal with new developments that were not covered under previous expert reports.

[171]At the same time, Article 4.6 of the IBA Rules 2020 also expands the scope of witness statements to address the new factual statements evolving throughout the case.

[172]Article 8 of the IBA Rules 2020 promotes remote hearings as an alternative to in-person hearings to reduce not just the costs of the hearing but also prompt equitable access to the proceedings and ensure enhanced efficiency by reducing the time involved. Refer Commentary to Article 8.2 second paragraph See**,** Commentary on the revised text of the 2020 IBA Rules on the Taking of Evidence in International Arbitration (January 2021), IBA Task Force For The Revision Of The IBA Rules On The Taking Of Evidence In International Arbitration / Consolidated Amendments.

[173]From layman's understanding, it refers to the place of Arbitration or venue Arbitration for regulating the procedural aspects of arbitration proceedings, and while it may have an impact to an extent on the regulation of

substantive aspects of arbitration proceedings, it need not be the exact the same concept. *See* Alan Hirsch, 'The Place of Arbitration and *Lex Arbitri*', *Dispute Resolution Journal,* 34:3 ARB. J. 43-8 (1979).

[174]Article 9.3 of the IBA Rules 2020.

[175]https://www.noerr.com/en/insights/one-year-with-the-2020-iba-rules-of-evidence-revised-to-reflect-the-last-ten-years-of-practice-and-increased-use-of-communication-technology.

[176]https://www.ibanet.org/Arb40-Subcommittee.

[177]https://www.disputingblog.com/svamc-to-publish-ai-guidelines-for-international-arbitration/

[178]'GUIDELINES ON THE USE OF ARTIFICIAL INTELLIGENCE IN ARBITRATION' (Practitioner Insights News & Analysis, August 31 2023) <https://thearbitration.org/wp-content/uploads/2023/08/SVAMC-AI-Guidelines-CONSULTATION-DRAFT-31-August-2023-1.pdf> accessed March 13 2024 at page no. 3.

[179]'GUIDELINES ON THE USE OF ARTIFICIAL INTELLIGENCE IN ARBITRATION' (Practitioner Insights News & Analysis, August 31 2023) <https://thearbitration.org/wp-content/uploads/2023/08/SVAMC-AI-Guidelines-CONSULTATION-DRAFT-31-August-2023-1.pdf> accessed March 13 2024 at page no.4.

[180]'GUIDELINES ON THE USE OF ARTIFICIAL INTELLIGENCE IN ARBITRATION' (Practitioner Insights News & Analysis, August 31 2023) <https://thearbitration.org/wp-content/uploads/2023/08/SVAMC-AI-Guidelines-CONSULTATION-DRAFT-31-August-2023-1.pdf> accessed March 13 2024 at page no .9

[181]'SVAMC Draft Guidelines Released for Public Consultation ' (Silicon Valley Arbitration & Mediation Center, August 31 2023) <https://svamc.org/svamc-draft-guidelines-released-for-public-consultation/> accessed March 12 2024

[182]Guideline 2 Safeguarding Confidentiality, 'GUIDELINES ON THE USE OF ARTIFICIAL INTELLIGENCE IN ARBITRATION' (Practitioner Insights News & Analysis, August 31 2023) <https://thearbitration.org/wp-content/uploads/2023/08/SVAMC-AI-Guidelines-CONSULTATION-DRAFT-31-August-2023-1.pdf> accessed March 13 2024 at page no.6.

[183]Id at page 8.

[184]Guideline 2 Safeguarding Confidentiality, 'GUIDELINES ON THE USE OF ARTIFICIAL INTELLIGENCE IN ARBITRATION' (Practitioner Insights News & Analysis, August 31 2023) <https://thearbitration.org/wp-content/uploads/2023/08/SVAMC-AI-Guidelines-CONSULTATION-DRAFT-31-August-2023-1.pdf> accessed March 13 2024 at page no.6.

[185]" Option A identifies a range of factors that may be relevant in the assessment of whether disclosure is warranted, specifically whether (i) the output of an AI tool is to be relied upon instead of primary source material, (ii) the use of the AI tool could have a material impact on the proceeding, and (iii) the AI tool is used in a non-obvious and unexpected manner. Option A provides an example of when disclosure may be appropriate bearing these factors in mind but stops short of making it a requirement."

[186]It goes a step further in proposing a two-prong test, providing for disclosure (i) when the output of AI tools is used to prepare or create materially relied-upon documents (including evidence, demonstratives, witness statements and expert reports) and (ii) when the output of that AI tool can have a material impact on the proceedings or their outcome. Disclosure in these cases should be proactive at the party's, expert's, or arbitrator's initiative, but a party can also request it by applying to the tribunal. See. 'GUIDELINES ON THE USE OF ARTIFICIAL INTELLIGENCE IN ARBITRATION' (Practitioner Insights News & Analysis, August31 2023) https://thearbitration.org/wp-content/uploads/2023/08/SVAMC-AI-Guidelines-CONSULTATION-DRAFT-31-August-2023-1.pdf

[187]Guideline 4- Duty of competence or diligence in the use of AI 'GUIDELINES ON THE USE OF ARTIFICIAL INTELLIGENCE IN ARBITRATION' (Practitioner Insights News & Analysis, August 31 2023) <https://thearbitration.org/wp-content/uploads/2023/08/SVAMC-AI-Guidelines-CONSULTATION-DRAFT-31-August-2023-1.pdf> accessed March 13 2024 at page no. 14.

[188]Guideline: Respect for the integrity of the proceedings and the evidence applying to the tribunal, Guideline 4- Duty of competence or diligence in the use of AI 'GUIDELINES ON THE USE OF ARTIFICIAL INTELLIGENCE IN ARBITRATION' (Practitioner Insights News & Analysis, August 31 2023) <https://thearbitration.org/wp-content/uploads/2023/08/SVAMC-AI-Guidelines-CONSULTATION-DRAFT-31-August-2023-1.pdf> accessed March 13 2024, at page no.16.

[190]GUIDELINE 6 Non-delegation of decision-making responsibilities, 'GUIDELINES ON THE USE OF ARTIFICIAL INTELLIGENCE IN ARBITRATION' (Practitioner Insights News & Analysis, August 31 2023) <https://thearbitration.org/wp-content/uploads/2023/08/SVAMC-AI-Guidelines-CONSULTATION-DRAFT-31-August-2023-1.pdf> accessed March 13 2024 at Page no. 17.

[191]Official Records of the General Assembly, Seventy-seventh Session, Supplement No. 17 (A/77/17), paras. 223–225.

[192]John M. Barkett & Judith Freedberg, 'Report of The MIAS Task Force on "Technology-Related Dispute Resolution And Adjudication: Model Clauses And Guidance Texts" in the Secretariat's Note

(A/Cn.9/Wg.Ii/Wp.236) to be Considered at The Seventy-Ninth Session of UNCITRAL Working Group II, February 12-16, New York, New York.

[193]Georgian International Arbitration Centre, 'Comments and Suggestions on technology-related dispute resolution and adjudication: Model clauses and Guidance text'.

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